PROGRESSIVE ARCHITECTURE *August 1961*

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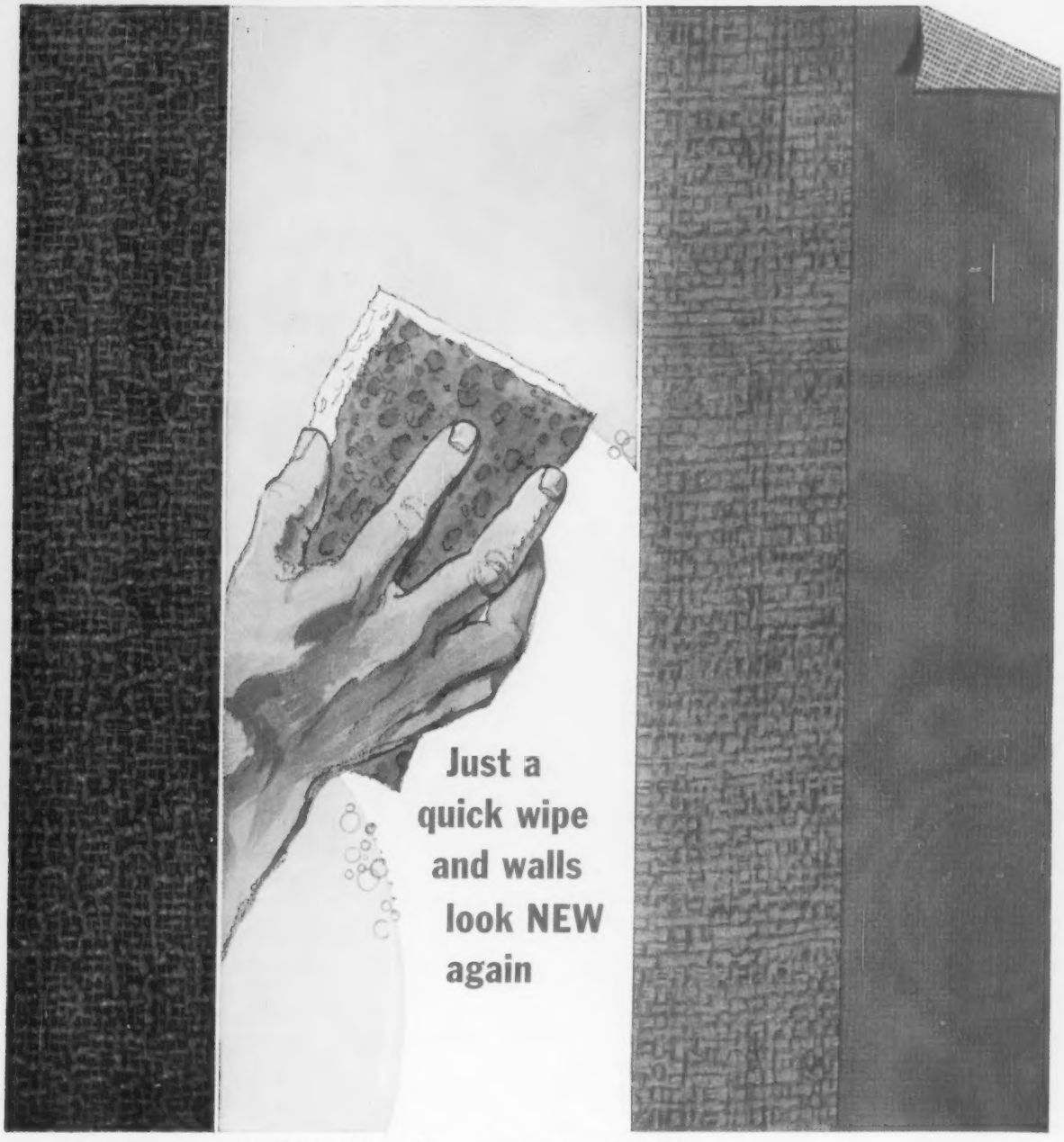

Koroseal patterns shown actual size (left to right) are: Nassau, Straw Weave, and Linen Weave.

Bright, cheerful Koroseal wall coverings slash building maintenance costs

Koroseal vinyl wall coverings by B.F.Goodrich add beauty in any building with their rich colors and subtle textures. And their durability and easy upkeep help reduce wall maintenance costs for years to come.

Fabric-backed, flame-proofed Koroseal wall coverings resist scuffs, scratches and stains. They keep their fresh, clean appearance for years with infrequent soap and water wipe-downs. The profit-cutting expense of periodic repaintings, often with complete shut-down of income-producing space, is drastically reduced. For information, write Dept. PA-8, *B.F.Goodrich Industrial Products Company, Marietta, Ohio.*

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Koroseal®
VINYL WALL COVERING

LOEB DRAMA CENTER,
HARVARD UNIVERSITY
Architects: Hugh Stubbins and Associates, Cambridge, Mass.
Theater lighting, stage equipment and electro-mechanicals: George C. Izenour.
Rotary Rising Stages installed by Stanley Elevator Company, Nashua, N. H.

Hydraulic Stage Lifts built by Rotary

Four massive stage sections which travel vertically on smooth, quiet hydraulic plungers are the key to the most flexible theater yet built.

Harvard's new Loeb Drama Center, the product of the imaginative design of Architect Hugh Stubbins, is three theaters in one. Engineered by George C. Izenour, theatrical design engineer, the four stages can be raised and lowered by pushbutton control to produce three different seating arrangements and a number of different stage effects, as desired for various performances.

BUILT BY ROTARY—The Rising Stages were designed and built by Rotary Lift to the architects' and engineers' specifications. In the revolutionary plan for the Loeb Drama Center they are used in combination with movable seat sections and pre-set lighting and rigging systems.

Operating like hydraulic elevators, the Rotary Rising Stages move quietly, safely, without vibration. Two powerful hydraulic plungers assure ample support for the tremendous weight of each section. A unique equalizing system keeps each pair of jacks level at all times. Rotary's Oildraulic Controller, developed for elevator service, insures smooth transmission of fluid power from the efficient pumping units, and complete control over vertical travel.

STAGE LIFT EXPERIENCE—Rotary Lift was chosen for this challenging job because of its leadership in the manufacture of hydraulic lifting devices . . . modern passenger and freight elevators, industrial lifting equipment and Rising Stages for many entertainment centers throughout the country. Among Rotary's other Rising Stage installations are those at the Stardust Hotel in Las Vegas, Dallas Memorial Auditorium, McCormick Place Exposition Center in Chicago, Charlotte, N. C., Auditorium-Coliseum and the University of California.

The experience of Rotary engineers in this type of work is unequaled in this country, and can be most helpful to you on similar projects. See our catalog on Rising Stages in Sweet's Architectural File 23g/Ro or mail coupon below for more information.

Rotary® **Oildraulic® Elevating Equipment**

RISING STAGES • PASSENGER AND FREIGHT ELEVATORS
INDUSTRIAL LIFTING EQUIPMENT

For more information, turn to Reader Service card, circle No. 368

Dover Corporation
Rotary Lift Division
1010 Kentucky, Memphis 2, Tenn.

Please send information on Rotary Rising Stages to:

Name_____

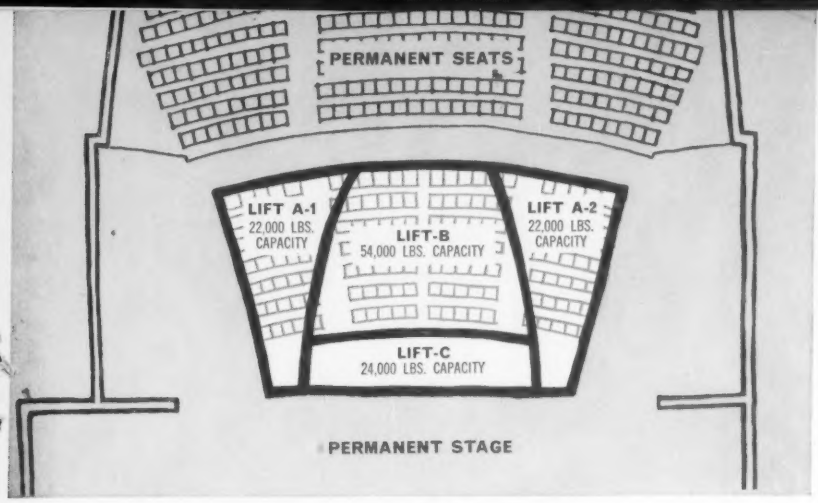
Company_____

Address_____

MAIL FOR DATA FILE

DOVER®

DOVER CORPORATION
ROTARY LIFT DIVISION
Memphis, Tenn., Chatham, Ontario

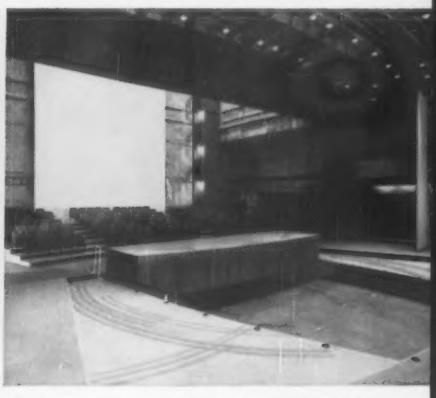


This diagram shows arrangement of the four Rotary Rising Stages in the Loeb Drama Center with pivoting seat sections in position. "A" and "B" Lifts have travel of 7′ each. The "C" Lift travels 14′–7″ and serves basement as well as intermediate landing and ground floor.

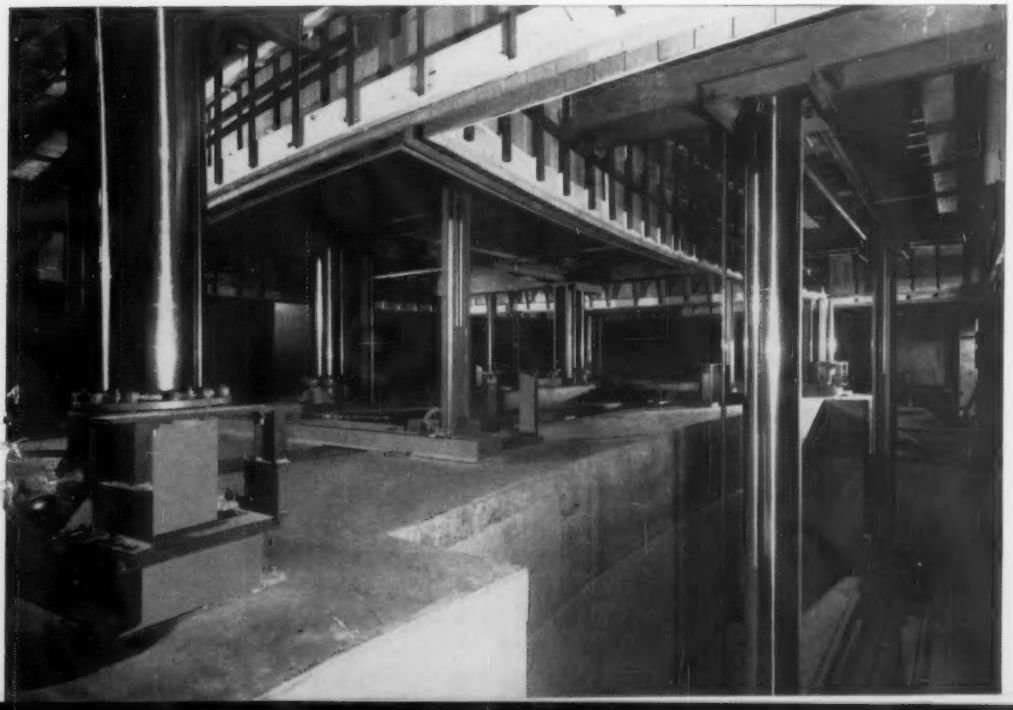
help create Harvard's "Automatic Theater"

In conventional proscenium type auditorium, seven rows of seats nearest stage rest on "A" and "B" Lifts. These seats are mounted on platforms which move on aviation type wheels.

For Elizabethan staging, front seat sections split in middle and are pivoted 90° (note wheel tracks) so that "B" and "C" Lifts can be raised to create apron stage projecting into audience area.



Theater-in-the-round brings into use all four lifts (shown here at different levels to demonstrate flexibility) and front seat sections are swiveled 180° from their original position.



Hydraulic jacks which move and support the stage sections are shown here. There are two jacks per section, equalized by a cable-and-strut system which insures perfectly level surface at any point of travel. Each lift has its own Rotary Oildraulic electric pumping unit, controlled through Mr. Izenour's analogue console to permit interlocking and operational flexibility.

Photos by Clemens Kalischer

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completely resist most every inorganic and organic chemical or solvent used in science and research labs

Tough Durcon sinks shrug off corrosive attacks of acids, alkalies, salts, solvents and other chemicals used as laboratory reagents . . . do not discolor or stain under the severest kind of service. For most applications, rugged, versatile Durcon 2 is recommended. Special composition Durcon 5 gives excellent resistance to massive amounts of concentrated sulfuric acid and glassware cleaning solution. Where large quantities of hydrofluoric or fluosilicic acids are encountered, Durcon 3 or Durcon 5 is recommended.

All Durcon sinks stand up under hard service without cracking or spalling. Thermal shock has no effect. For further information and prices, contact your Laboratory Furniture Manufacturer or write for new Bulletin PF/5a.

DESIGN—Clean, modern, practical with coved corners and dished bottoms makes them highly functional and attractive plus blending with all laboratory furniture.

CORROSION RESISTANCE—Made of modified epoxy resin, Durcon exhibits almost complete resistance to wide range of acids, alkalies, salts, solvents, and other organic chemicals.

WIDE SELECTION—Table sinks, end sinks, drainboard-sink units, double compartment sinks, cylindrical sinks, cup sinks.

LIGHT WEIGHT—Approximately 40% as heavy as competitive sinks. Normally thickness of stone or porcelain sinks is at least 1" while Durcon is but ½" thick.

LOWER COST—Besides lower initial cost, there are savings on freight and installation.

EASIER INSTALLATION—One man can easily install a Durcon sink either under table top or free standing. No hydraulic jack required as for ceramic or stone sinks. Less weight means less complicated supports.

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SHOCK RESISTANCE—No failure due to thermal shock need be feared. Wide range of tests also assure many years' service without cracking, spalling or other forms of mechanical or fatigue failure.

MOISTURE ABSORPTION—Durcon sinks are impermeable to liquids. The percentage of moisture absorption over an extended period is a maximum of 0.06%.

THE DURIRON COMPANY, INC.
DAYTON, OHIO

DURCO
CORROSION RESISTING ALLOYS & EQUIPMENT

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THIS MONTH IN P/A

The World's Largest Architectural Circulation

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Catty-cornered building for U. S. Gypsum by Perkins & Will . . . Japanese-Canadian Center designed for Toronto . . . Four winning solutions in San Francisco's latest redevelopment competition . . . The Cloisters clutches an apse to its bosom . . . Continental auditorium by Johnson for New York State Theater . . . PERSONALITIES: Lee, Leon . . . BULLETINS . . . WASHINGTON/FINANCIAL NEWS . . . PRODUCTS: Recessed lighting, low-cost curtain-wall system . . . MANUFACTURERS' DATA.

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Volume XLII, No. 8

The Pius XII Memorial Library,
Saint Louis University, St. Louis, Missouri
Architect: Leo A. Daly Company, St. Louis.

How different Armstrong floors filled 3 special needs at The Pius XII Memorial Library

FOR QUIET AND COMFORT IN STACK AND STUDY AREAS: ARMSTRONG CORK TILE. The most resilient of all resilient floors, it makes sure footsteps are never disturbing. A special Armstrong plastic finish makes Cork Tile easier and less costly to maintain.

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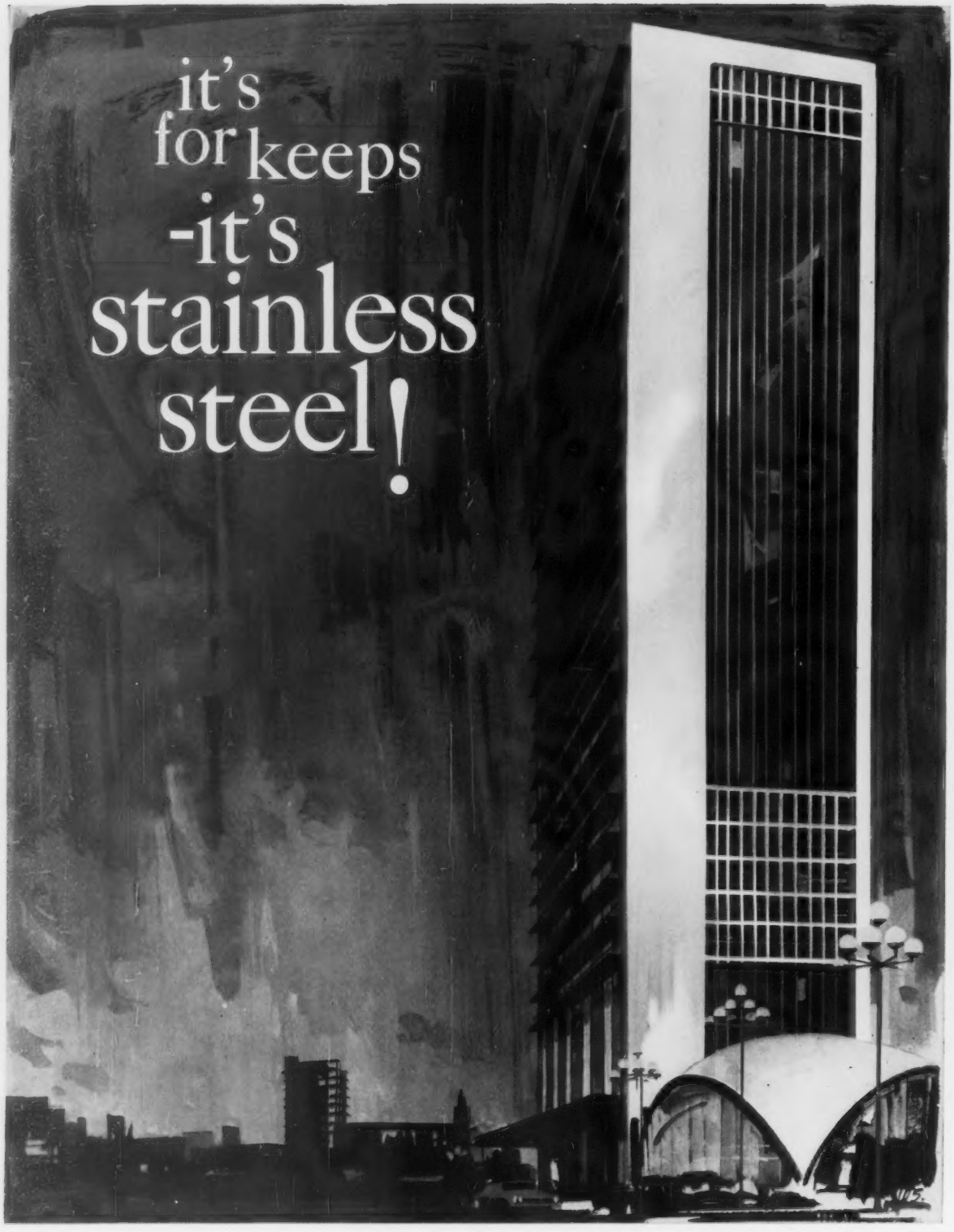

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Kalwall translucent Skyroof brightens inside stair well at Peebles Elementary School addition, Bourne, Massachusetts.
Architects and Engineers: Drummey, Rosane, Anderson; A.I.A., Boston: Contractors: Peabody Construction Co. Inc., Boston.

Casting new light *(daylight)* on interior design... Kalwall translucent Skyroofs

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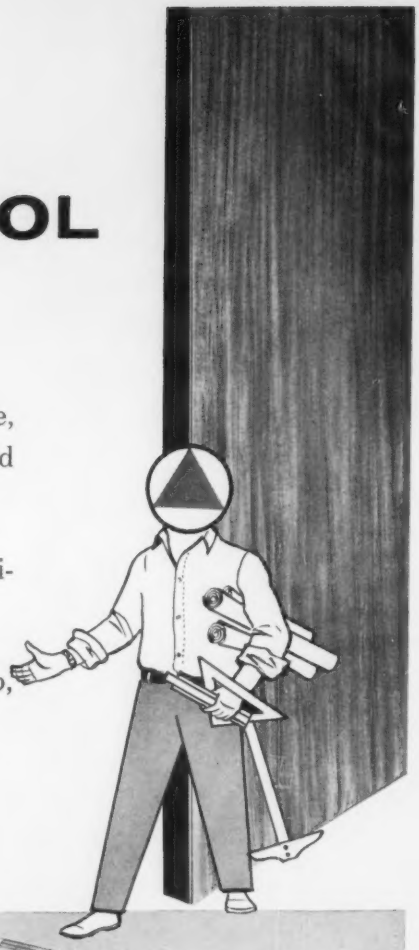

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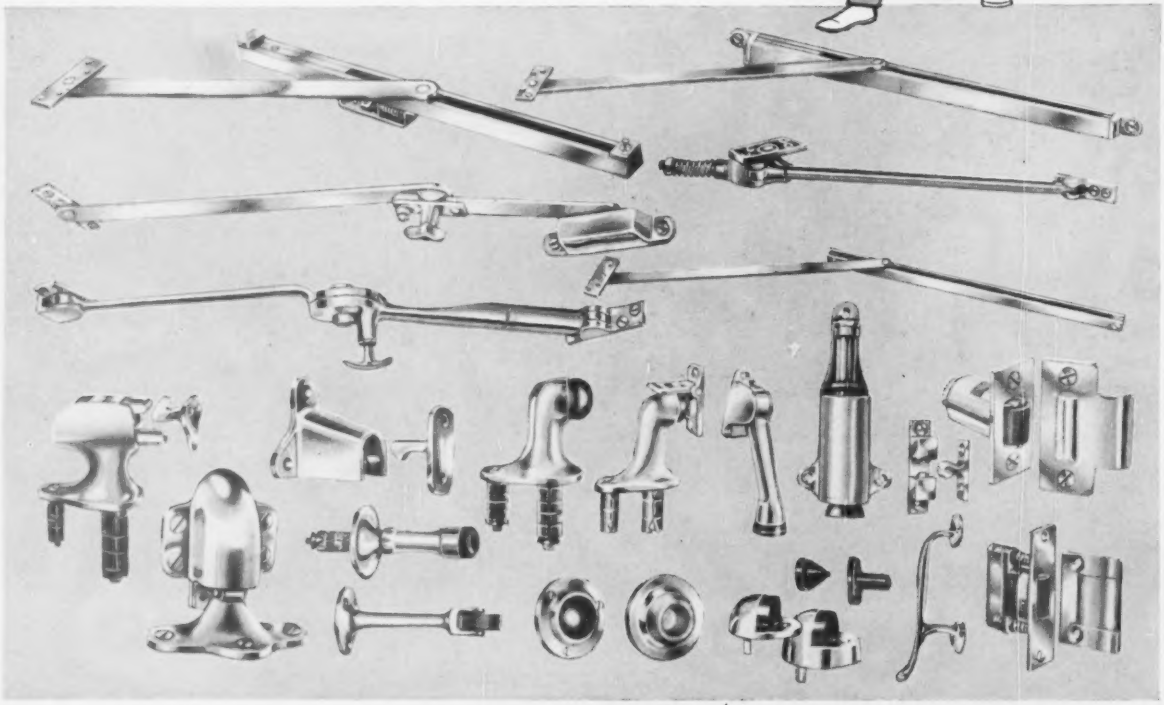

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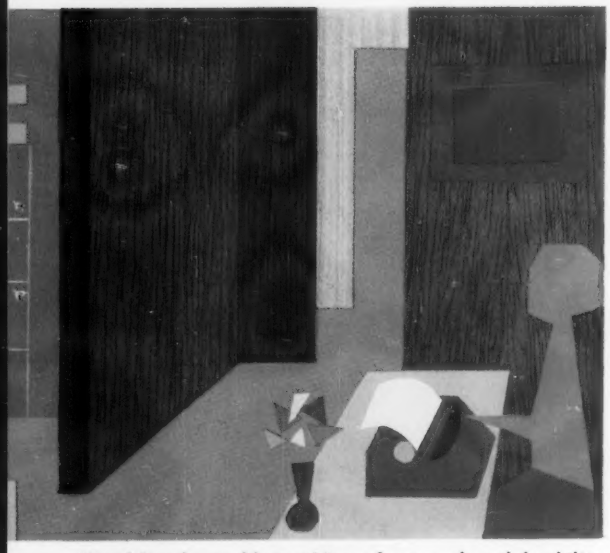

Wood-faced movable partitions of unprecedented durability can now be specified for general office, plant, or institutional areas with Permagard Movable Partitions. The scratch-resistant Permagard surface helps prevent damage to the partitions in dismantling and moving, as well as when they are in use.

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Now you can take advantage of real wood's incomparable beauty in virtually *any* interior application—even in areas where abrasion and smudging formerly would have created major repair and maintenance problems. New Permagard-surfaced woods by Weldwood withstand punishment no wood ever did before. They never need waxing, never need resurfacing, yet they never lose their original beauty.

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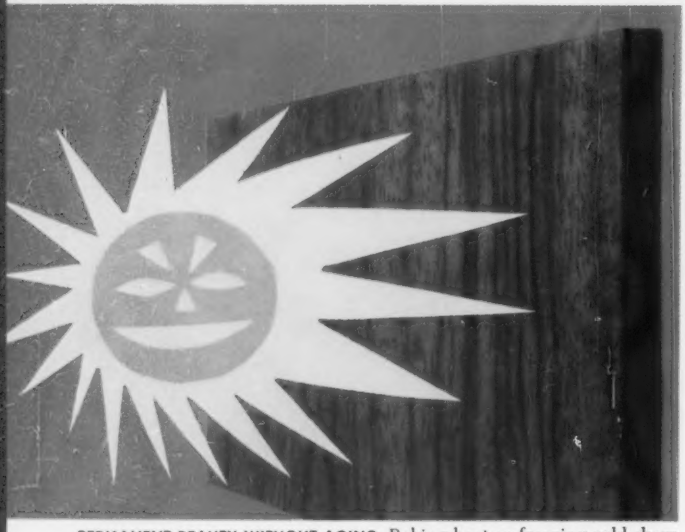

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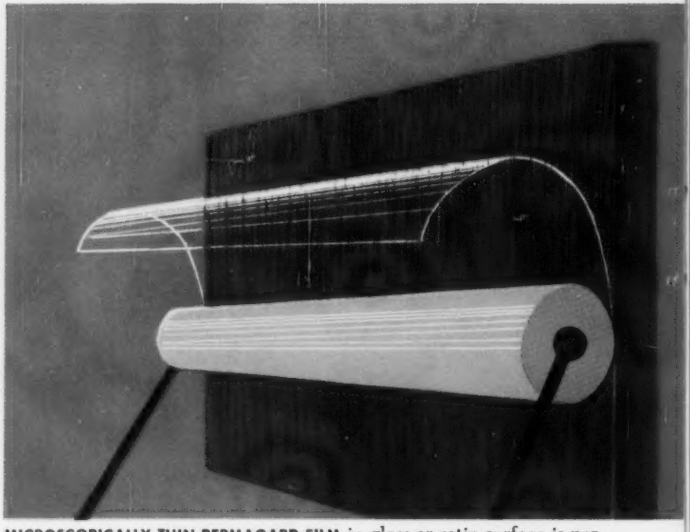

MICROSCOPICALLY THIN PERMAGARD FILM in gloss or satin surface is permanently fused to the wood, becomes a completely invisible, nonporous barrier between the wood and smudges, abrasion, moisture, acid, and heat. Permagard woods work easily, too—like regular paneling, they can be sawed, drilled, nailed, or mounted with contact cement.

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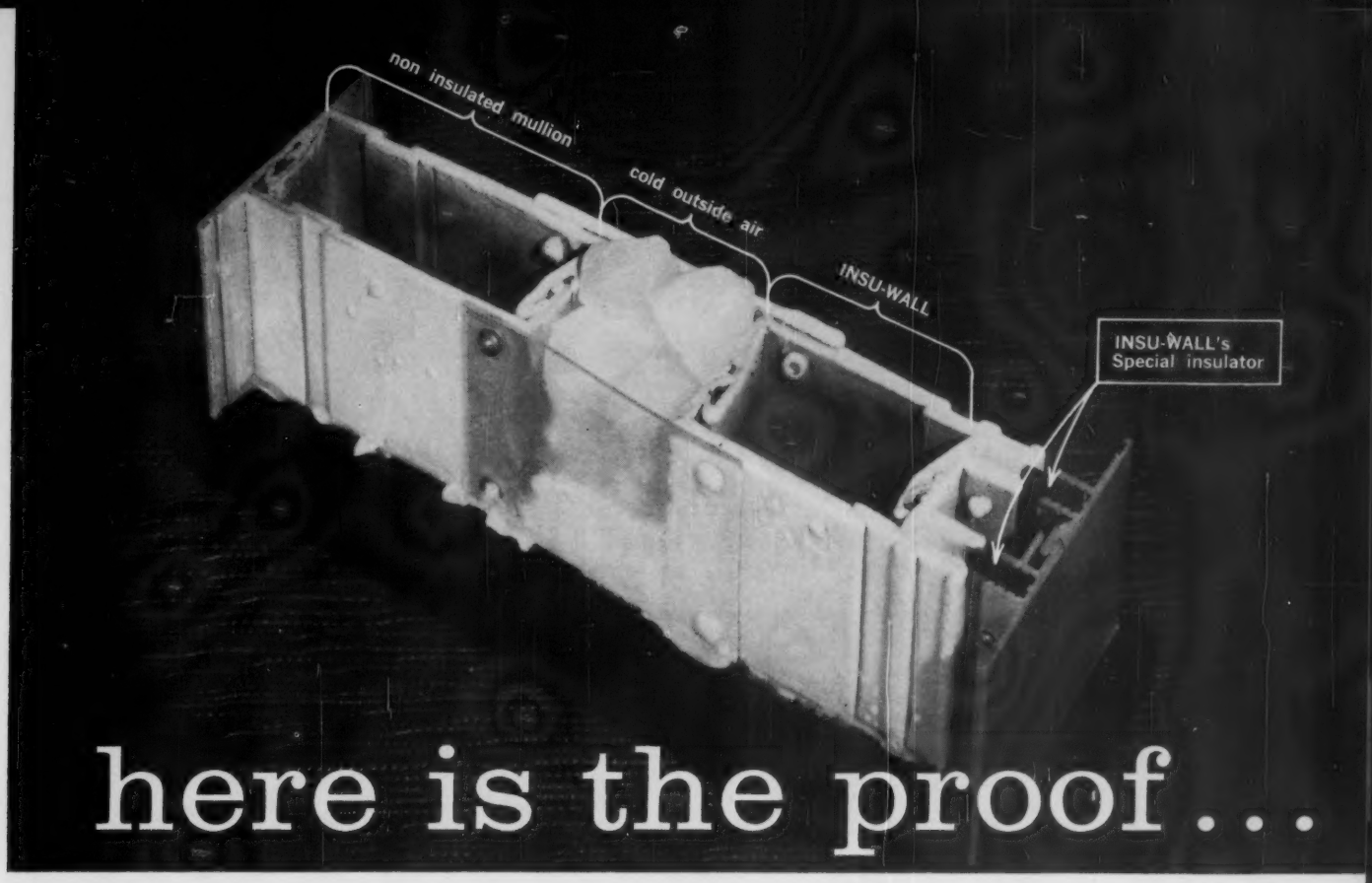

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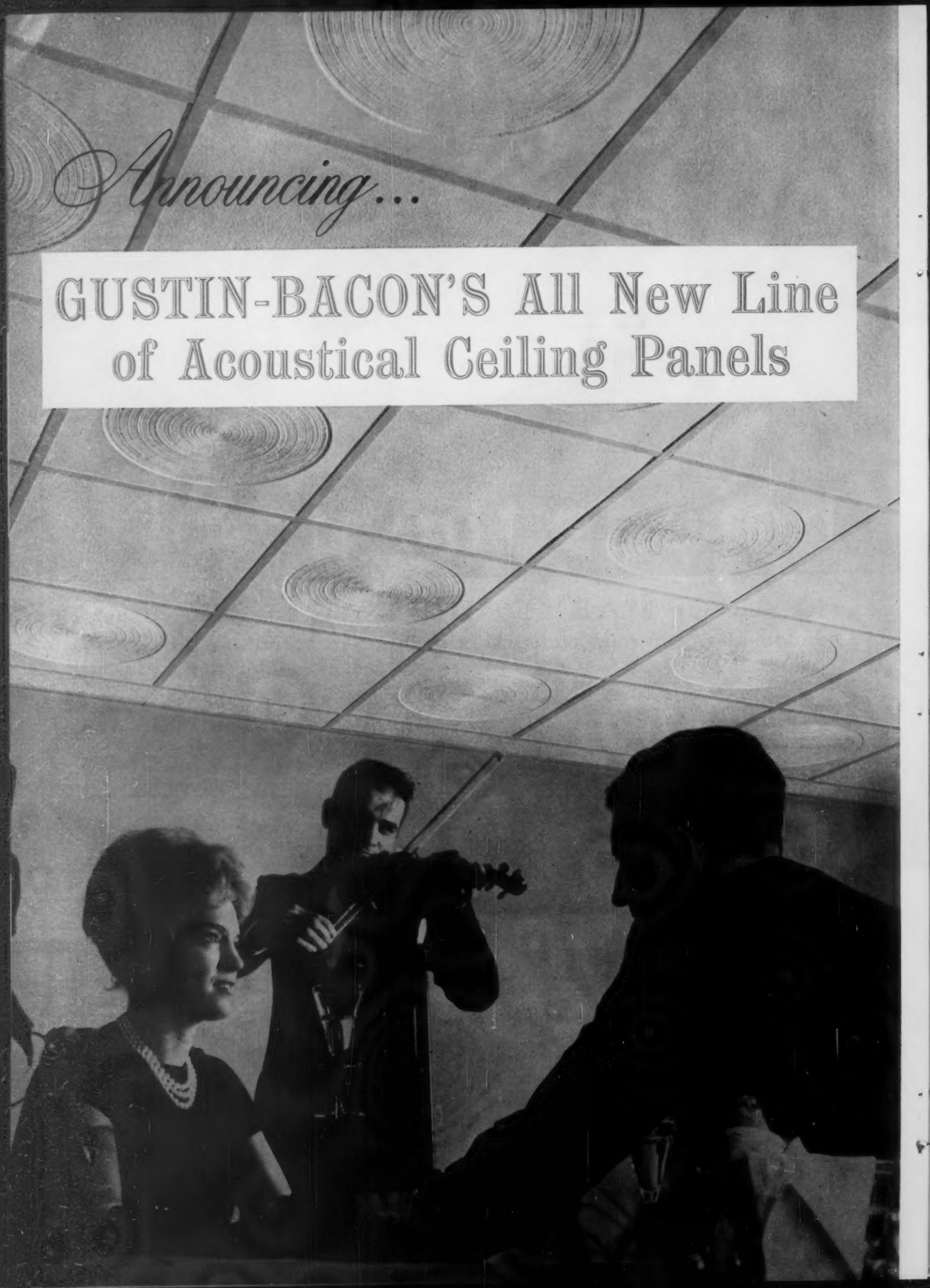
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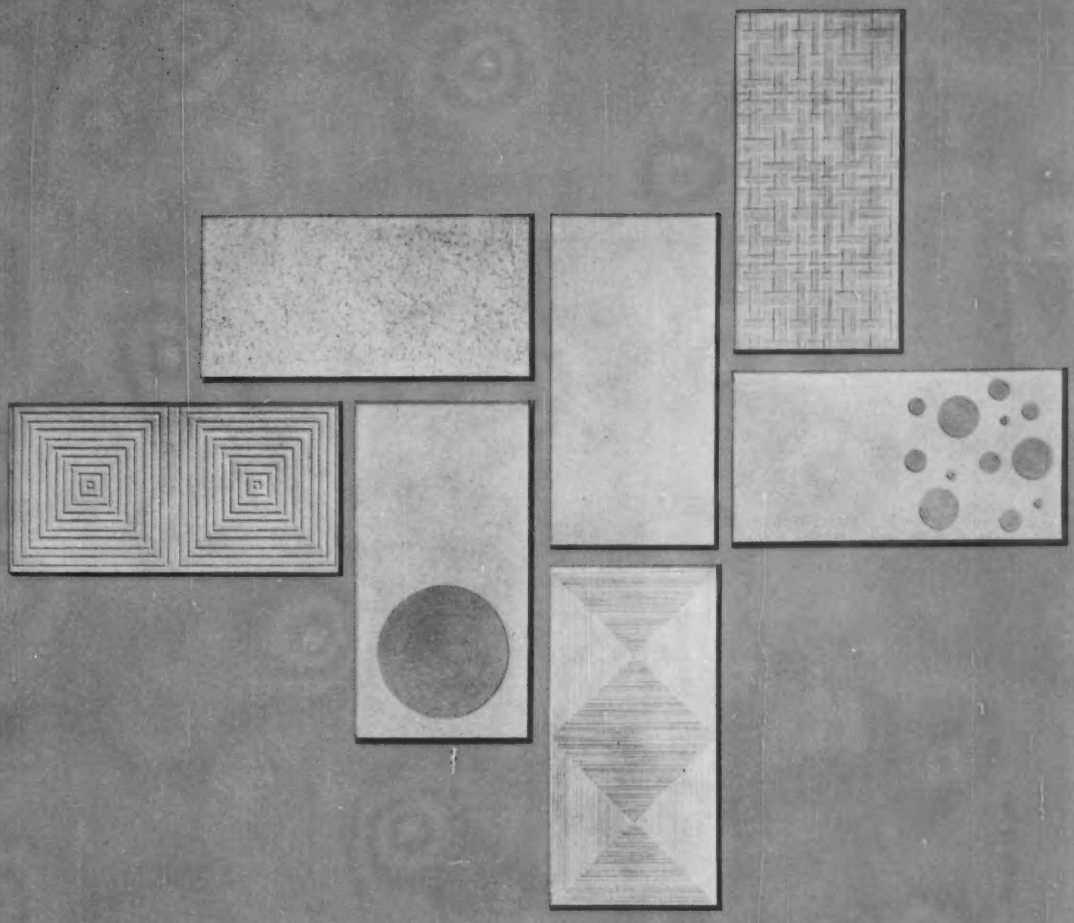

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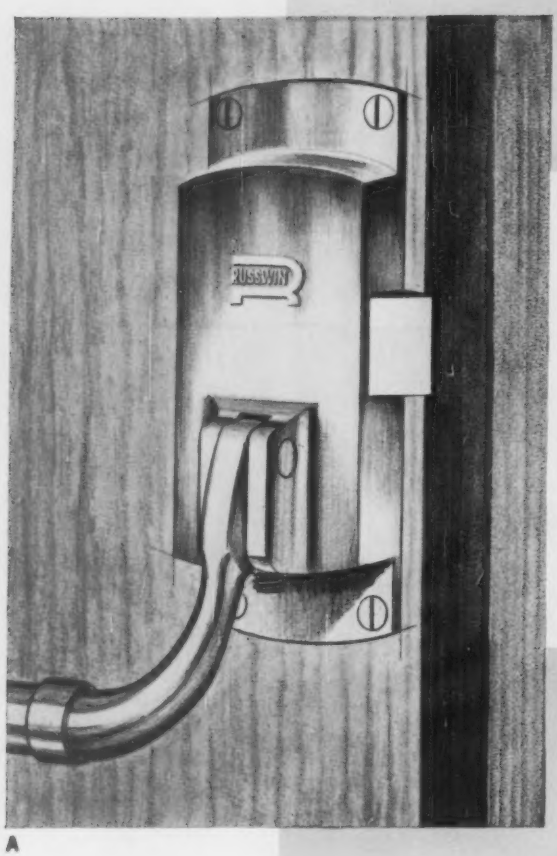

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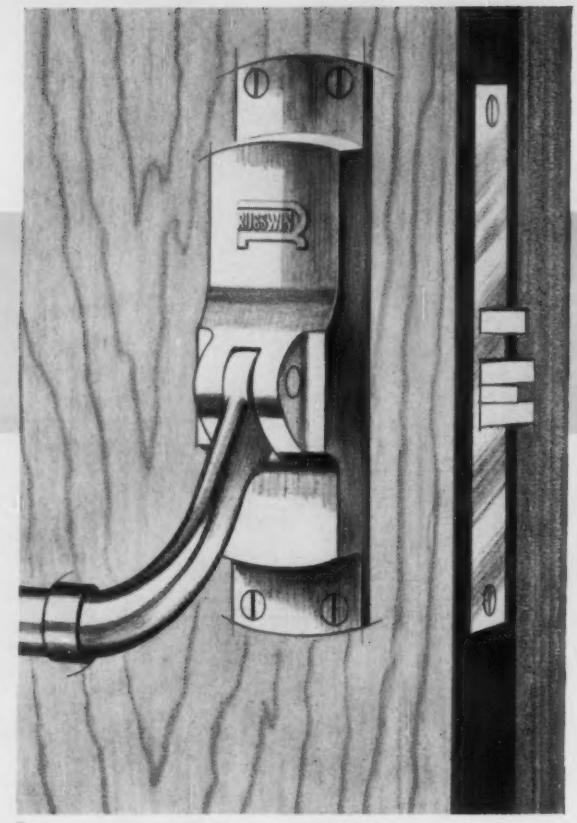

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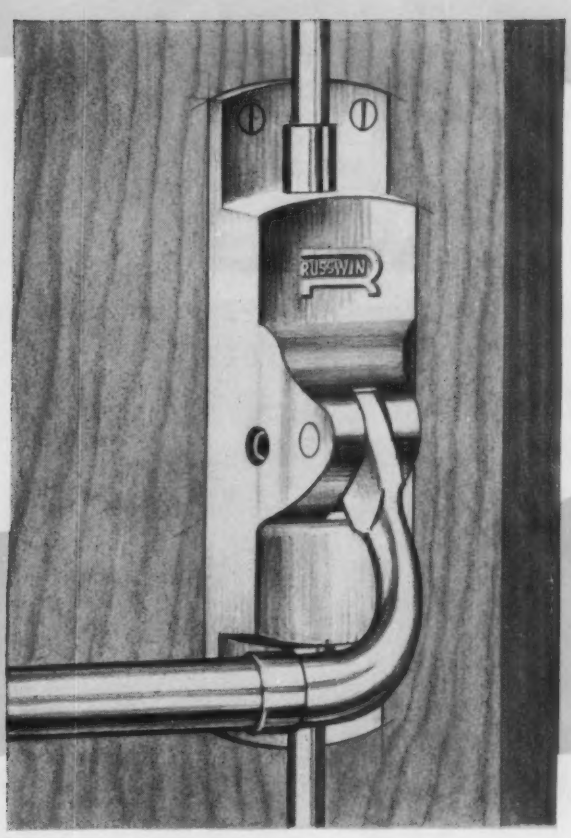
C–Russwin Vertical Exit Bolts — Heavy-duty, maximum security type. Safety-engineered with push-or-pull crossbar action. Independent bottom latch action. For single doors or pairs of doors.

D–Russwin Concealed Exit Bolt — New. Fits 99% of all metal doors — narrow-stile aluminum, hollow metal. Unique telescoping vertical rod. Completely reversible. For single doors, or pairs of doors.



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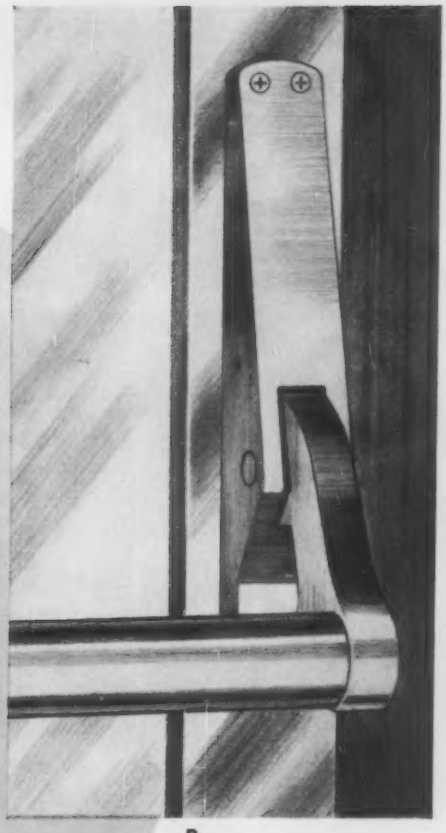


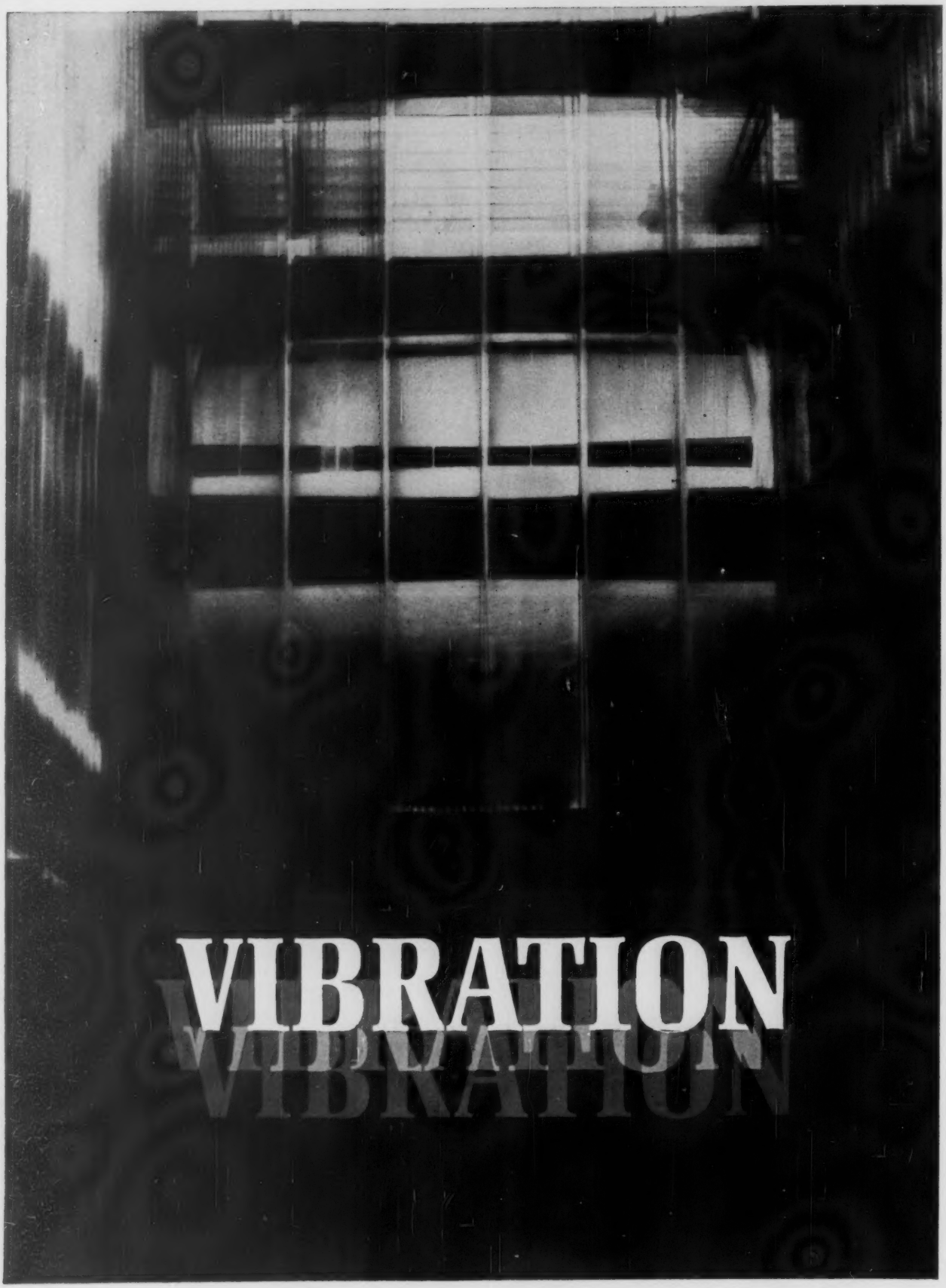
D

means on fire exit bolts

The Russwin "R" assures (1) a complete line of fire exit bolts . . . types and functions for any door; (2) superb quality for long, trouble-free, heavy-duty service; (3) Russwin "safety engineering" for complete dependability; (4) smart, functional styling. *Whatever* your doorware needs — exit bolts to door closers — *look to Russwin.* Russell & Erwin Division, The American Hardware Corporation, New Britain, Connecticut.

RUSSWIN

For more information, turn to Reader Service card, circle No. 370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Polysulfide-base sealant combines steel-grip bonding with rubbery elasticity. It chemically welds itself to all building materials in any combination, and can expand up to 100% without adhesive failure.

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CHEMICAL CORPORATION
780 N. Clinton Ave., Trenton 7, N. J.
In Canada: Naugatuck Chemicals Division, Dominion Rubber Company, Elmira, Ontario

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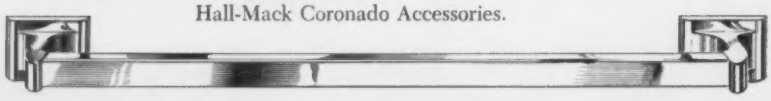
Quality that quietly speaks for itself...

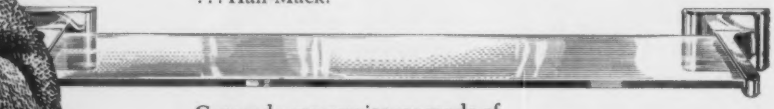
HALL-MACK®

CORONADO ACCESSORIES

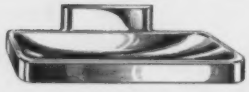
Where nothing but the finest in distinctive bathroom decor is acceptable, there you'll always find Hall-Mack Coronado Accessories.

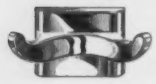


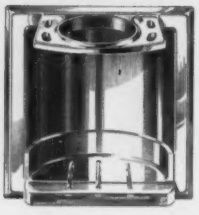
Their lasting style and elegant quality are topmost among all bathroom accessories, bearing the most time-honored name of all ... Hall-Mack.

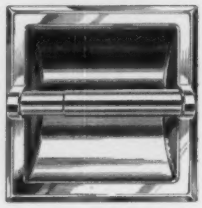


Coronado accessories are made of highest quality Zamak metal or brass, brilliantly polished, then finished in copper-nickel-chrome plate.









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HALL-MACK COMPANY *division of Textron Inc.*
1380 W. Washington Blvd., Los Angeles 7, California

PA-861

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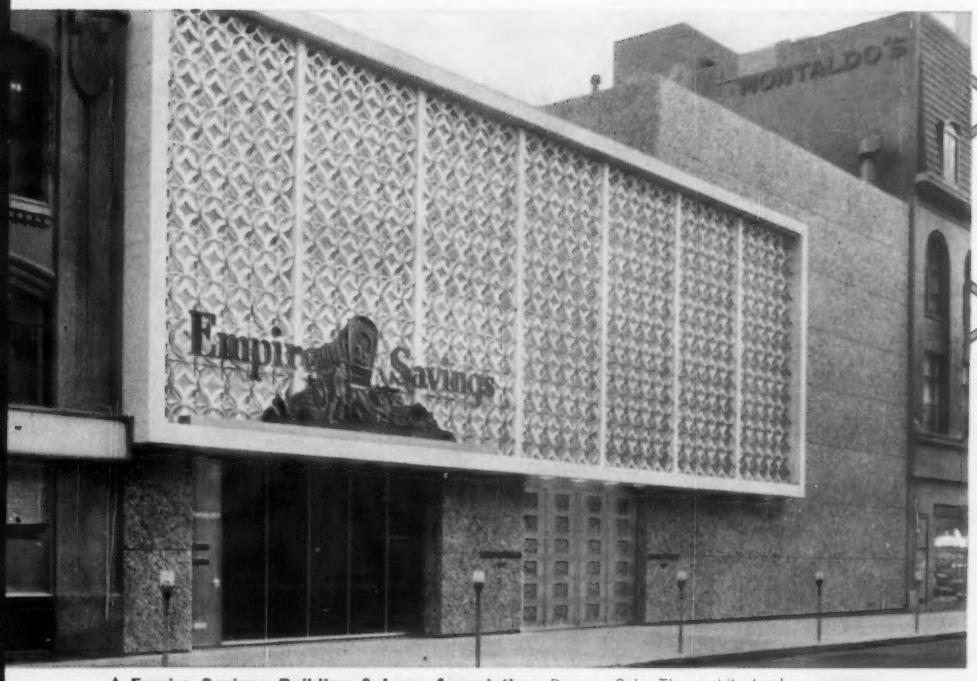
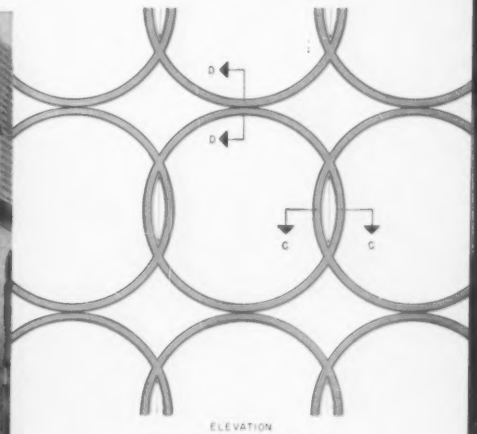
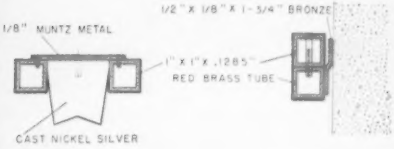
3 faces in bronze

▲ **Cooperative Savings & Loan Association,** Wilmington, N. C. Architectural Bronze lends to this modern building of glass and metal a feeling of warmth and dignity. Nearly all the architectural metals used on the structure are extruded Bronze, including mullions, glass stops, doors, and air-conditioning grilles. ARCHITECT: Leslie N. Boney, Wilmington, N. C. FABRICATOR: Newman Brothers Inc., Cincinnati.





ELEVATION
ARCHITECTURAL SCREEN



SECTION C-C SECTION D-D

▲ **Empire Savings Building & Loan Association,** Denver, Colo. The architectural screen dominating this facade consists of 24″ dia. circles made from 1″ square Red Brass tubes. Where rings intertwine, cast Nickel Silver inserts with sandblasted sides and polished faces accent the design (see drawing above, right). ARCHITECTS: Raymond Harry Ervin & Associates, Denver. FABRICATOR: William G. Zimmerman Architectural Metals, Inc., Denver.

These facades illustrate the distinctive beauty and the versatility of Bronze in architectural design. They are three of the many new examples shown in our 2nd Edition of "Architectural Metals by Anaconda." This helpful 64-page book contains practical information and detailed data on the architectural applications of Copper, Brass, Bronze, and Nickel Silver—colors, forms, physical and mechanical properties, application methods, and suggested specifications. In addition, there are many pages of fabricators' shop drawings showing exactly how effects were achieved. Write for your copy. Address: Anaconda American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.

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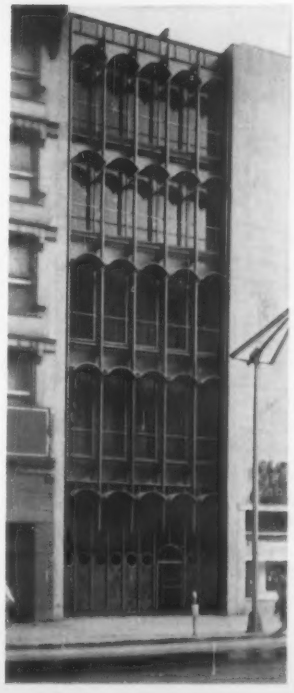
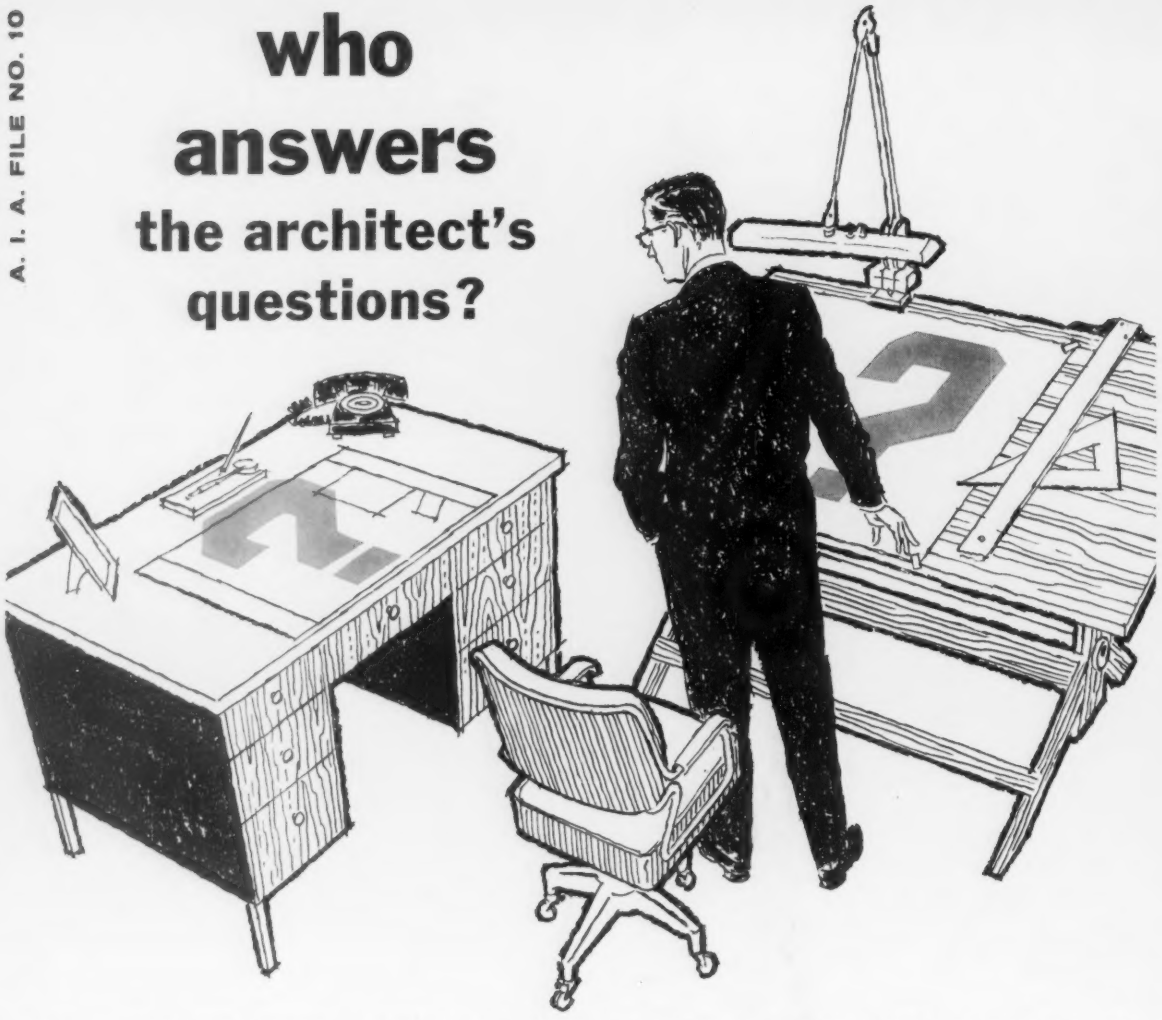


Painting Industry Insurance Fund Building, New York City. Here is a double curtain wall of Bronze, all in a medium statuary finish. The inner or closure wall mullions are formed of extruded shapes and the spandrels are light-gage Bronze sheets bonded to micro-sanded, cement-asbestos board. The exterior mullions of rectangular Bronze tubes, with internal steel reinforcement at the outriggers, support the arched skyshades and catwalks at each floor. Skyshades are 1½″ thick shells 4′ x 3′, formed of Bronze sheet with inner stiffeners of Bronze "Z" shapes. ARCHITECTS: Mayer Whittlesey & Glass, W. J. Conklin, Associate Partner, New York. FABRICATORS: Trio Industries, Inc., Bridgeport, Connecticut.

A. I. A. FILE NO. 10

who answers the architect's questions?



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Translucent, light diffusing glass not only serves as a background for beauty . . . *it is beauty.* Add the proven utility that only glass offers and you have the reasons why glass is preferred for these and other characteristics that help to achieve clean, functional modern design.

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"Educated Daylight"

SCORES HIGH in TODAY'S SCHOOLS

Whether it be in a western elevation where Coolite Heat Absorbing glass is installed to harness "raw" sunlight and control temperatures . . . a skylight to provide a large area of shadowless illumination . . . classroom fenestration that directs light deep into interiors . . . polished or obscure wire glass that provides fire retardance plus security . . . there is a Mississippi product that will handle your assignment capably and at reasonable cost.

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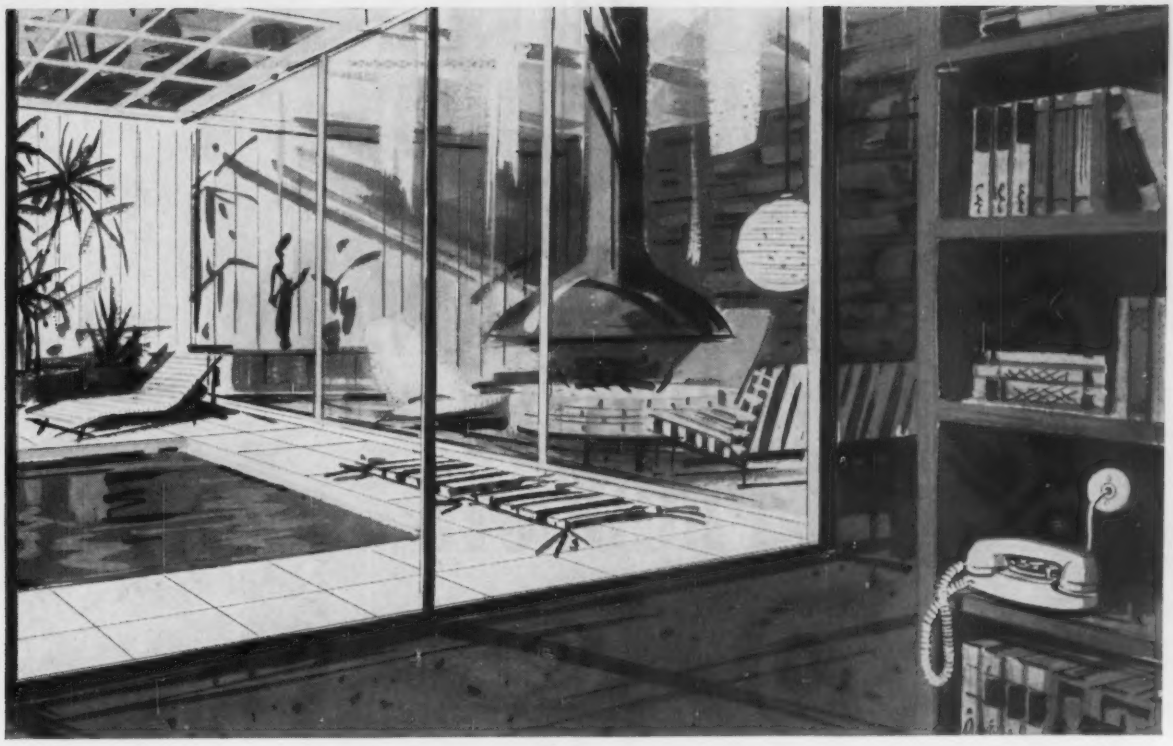
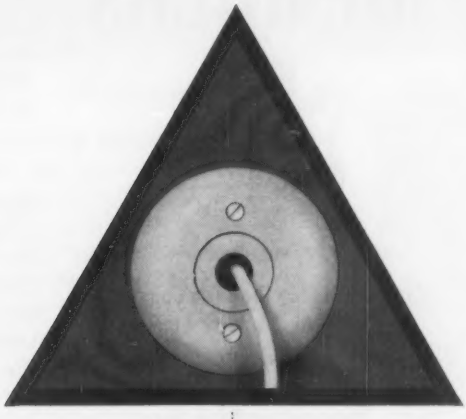


For details of home installations, see Sweet's Light Construction File, 11c/Be.



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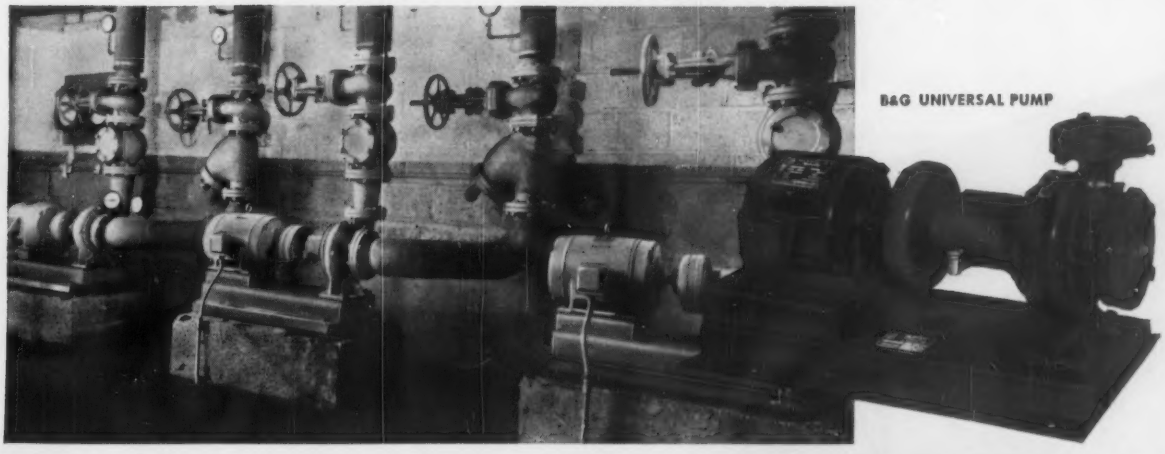

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The Green Acres installation has six secondary heating zones and six domestic water zones.

B&G BOOSTER PUMP

Photo shows secondary heating pump, domestic water secondary pump and domestic water recirculating pump.

B&G SERIES 1522 PUMP

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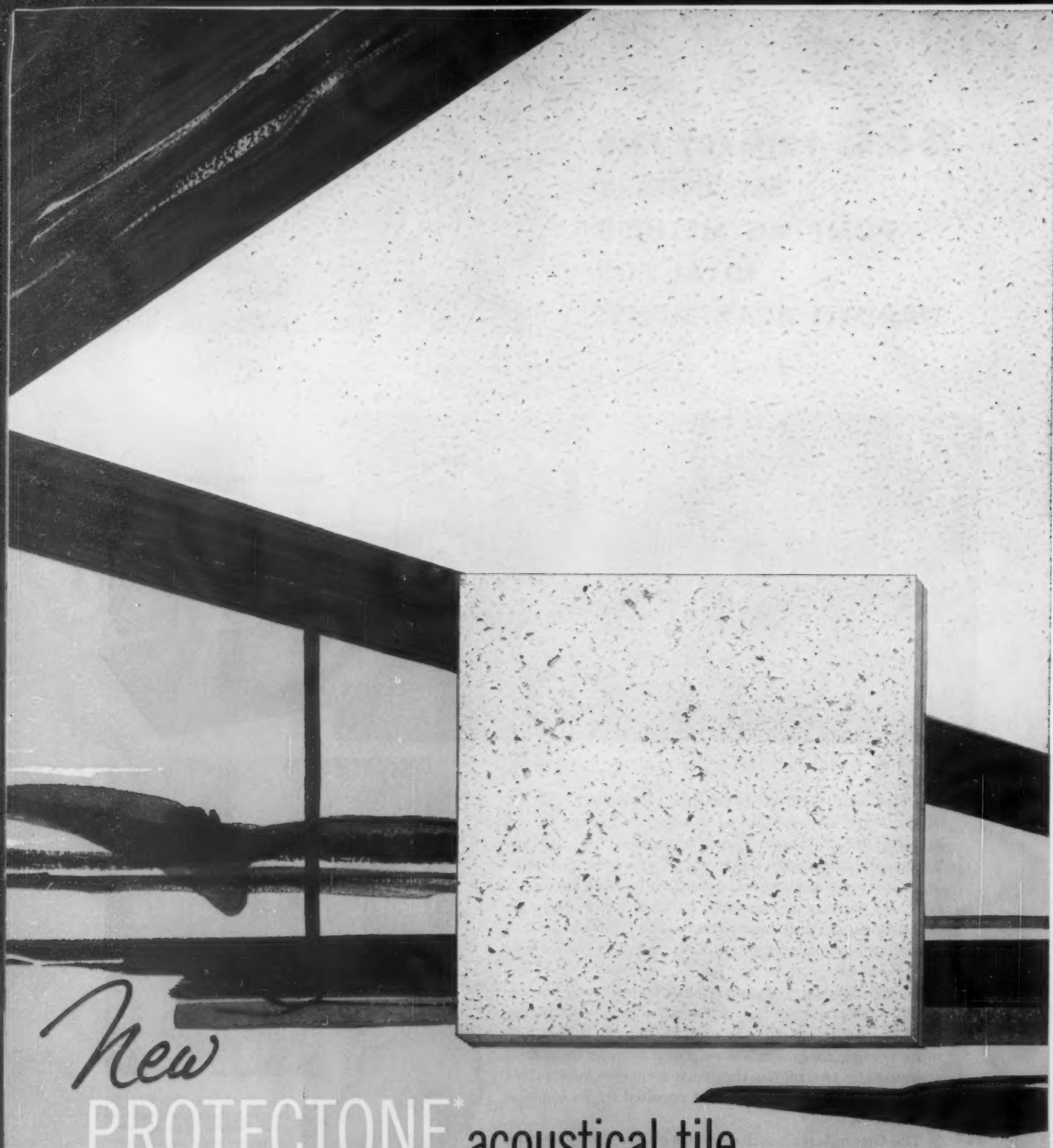

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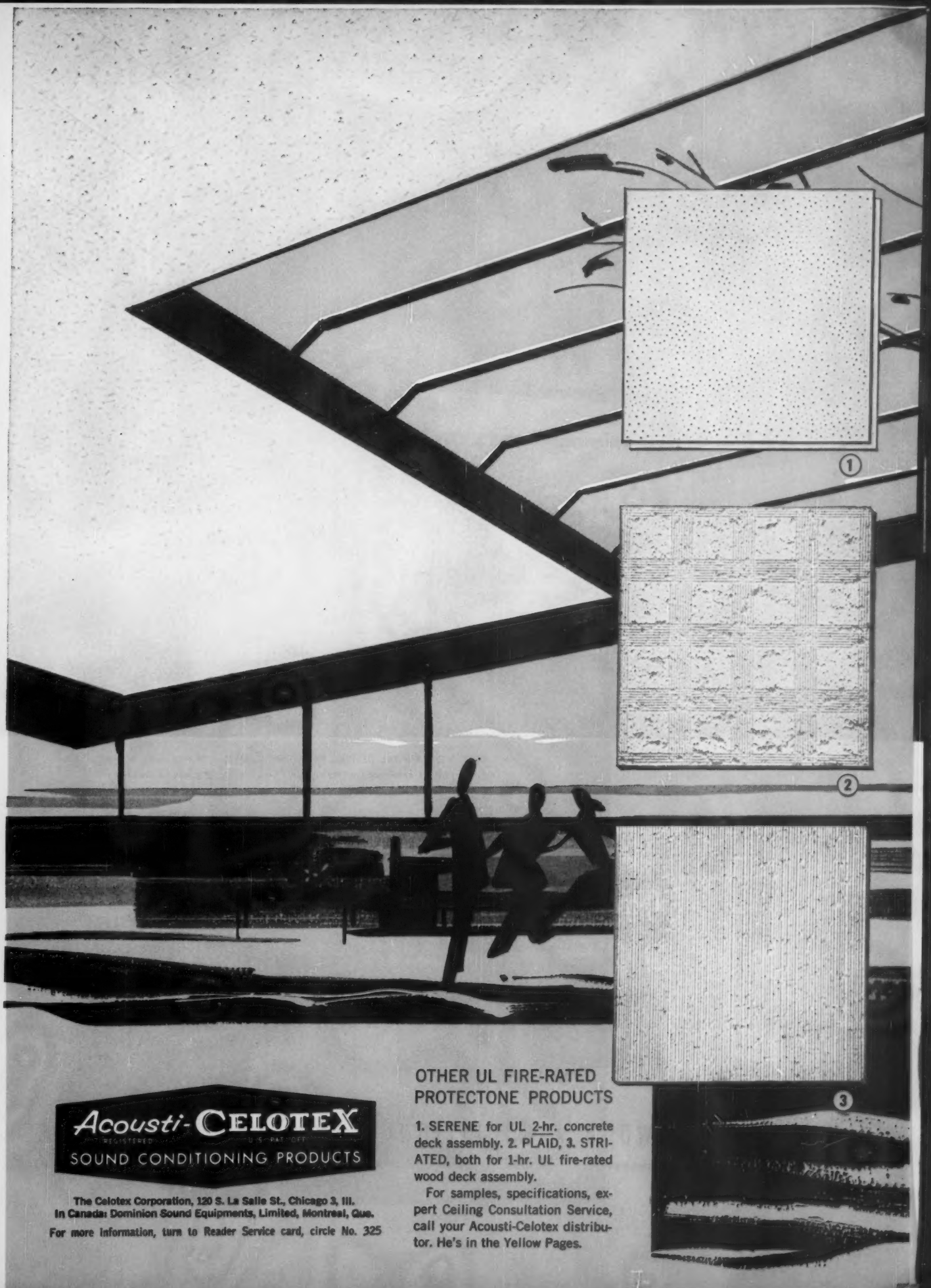

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Architect: Charles Colbert, A. I. A.

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***THE APSIDAL WALL OF REDWOOD** provides a decorative but unobtrusive background for the altar in this handsome church. And because redwood has the feeling of warmth so desirable for church structures, it was also used for paneling.*

Architect: Carlton A. Steiner, A. I. A.

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all more inviting... thanks to Redwood

These three buildings demonstrate how redwood gives the architect the freedom of expression he needs to avoid the cold, austere "institutional look." Unlike other, less versatile materials, redwood has an unaffected beauty that blends with its setting, naturally and beautifully. If you do not have an up-dated copy of "The Architect's Redwood File," write Dept. A-5 on your business letterhead.

***THIS AWARD-WINNING SCHOOL** is but one of many such buildings constructed almost entirely of redwood. Budget-conscious school boards and architects have a high regard for redwood's proven record of low maintenance costs as well as for its simple, natural beauty.*

Architect: John Lyon Reid, A. I. A.

SAN FRANCISCO 11 ♦ CRA-TRADEMARKED CERTIFIED KILN DRIED REDWOOD

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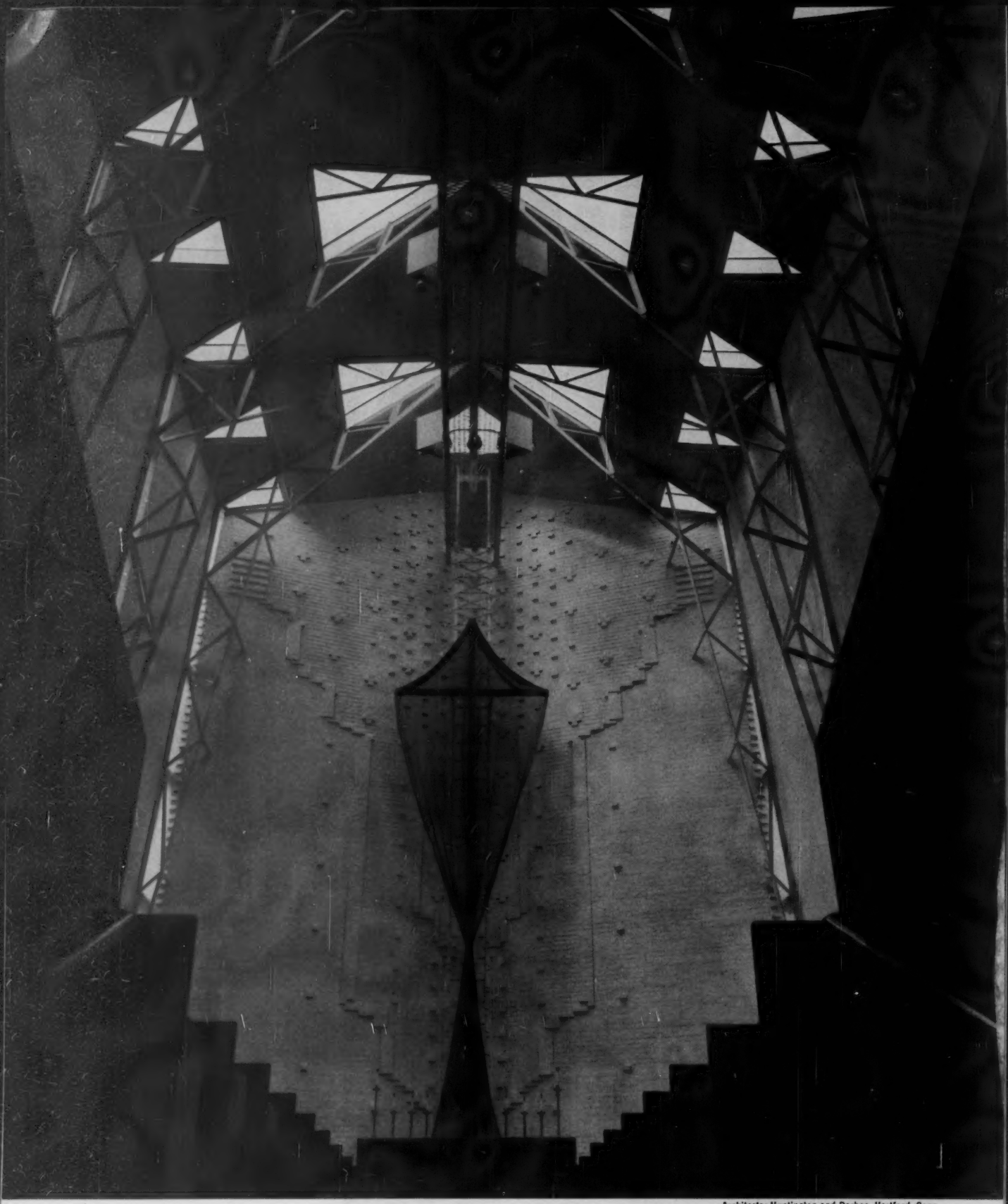

Architects: Huntington and Darbee, Hartford, Conn.

ST. MARK'S EPISCOPAL CHAPEL, UNIVERSITY OF CONNECTICUT (STORRS)

The architects conceived this award-winning chapel as a "crystal of light." Special pyramidal Wasco Skydomes were designed to convey a crystalline effect, and to complement the triangular roof trusses. The domes above the nave, molded of white translucent Acrylite®, provide evenly diffused, glare-free daylighting. Above the altar, glass prisms suspended in clear Wasco Skydomes produce changing patterns of rainbow colors upon the white brick wall. Wasco welcomes other opportunities to combine daylighting with advanced architectural ideas. Phone or write our Custom Engineering Department.

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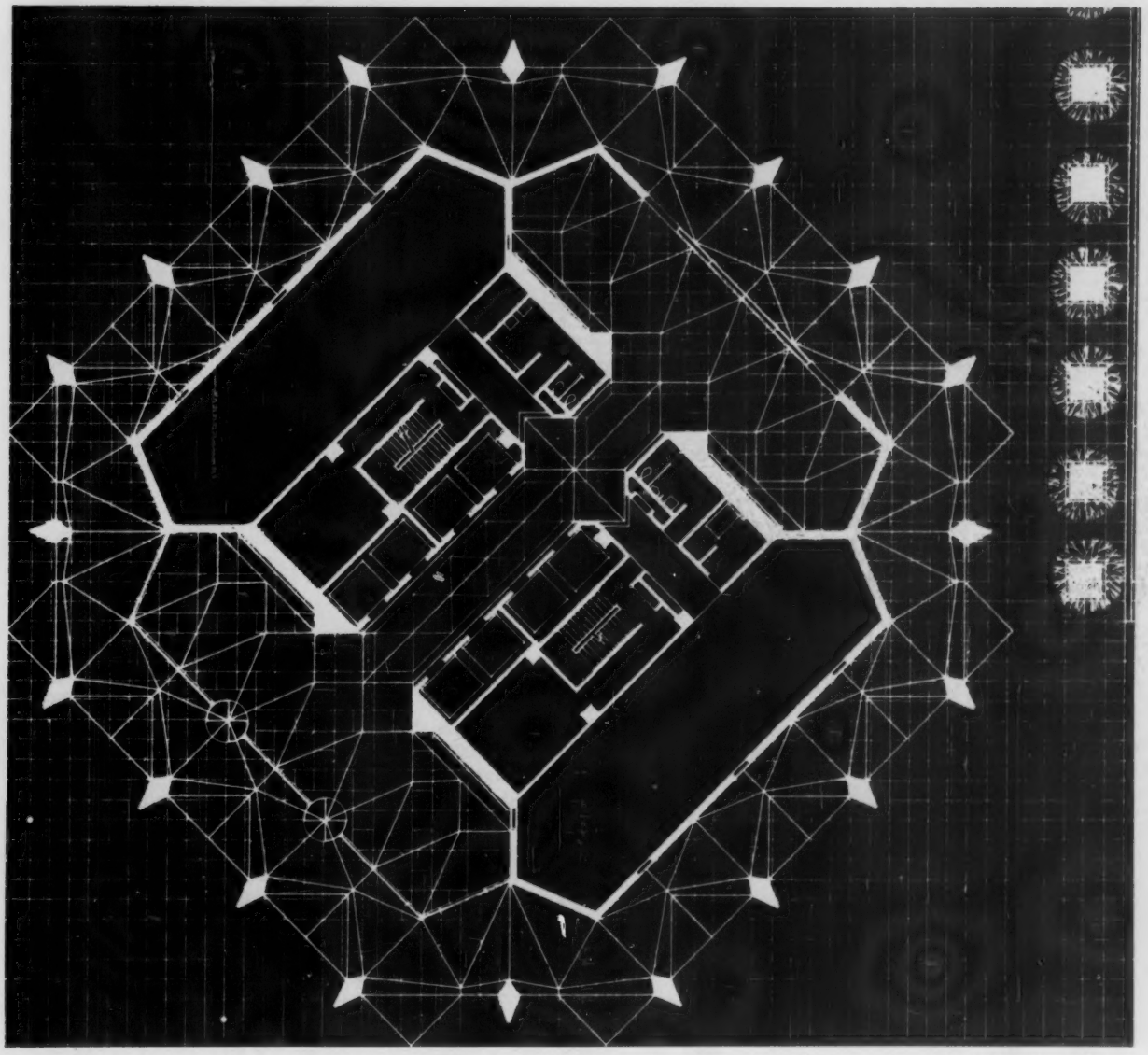
For more information, turn to Reader Service card, circle No. 380

PROGRESSIVE ARCHITECTURE AUGUST 1961

NEWS REPORT

Architecture's Monthly News Digest of Buildings and Projects, Personalities, New Products



Ground-floor plan of U.S. Gypsum Building by Perkins & Will shows disposition of building on site, reflected ceiling plan.

35 U.S. GYPSUM BUILDING CREATES PLAZA

36 CANADA TO GET JAPANESE CENTER

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Architect: Cooley & Borre, A.I.A. & Associates
Park Ridge, Illinois
General Contractor: Cheil & Anderson,
Chicago, Illinois
Sound Engineer: Empire Sound Service
Chicago, Illinois

New home office for Protection Mutual . . .

sound planned with WEBSTER ELECTRIC Telecom

The exterior of this contemporary headquarters for the Protection Mutual Insurance Company at Park Ridge, Illinois, combines the functional and aesthetic qualities of black face brick, aluminum curtain walls, mosaic panels, glare-reducing glass.

The interior is *sound planned* with a complete Webster Electric Telecom intercommunication system!

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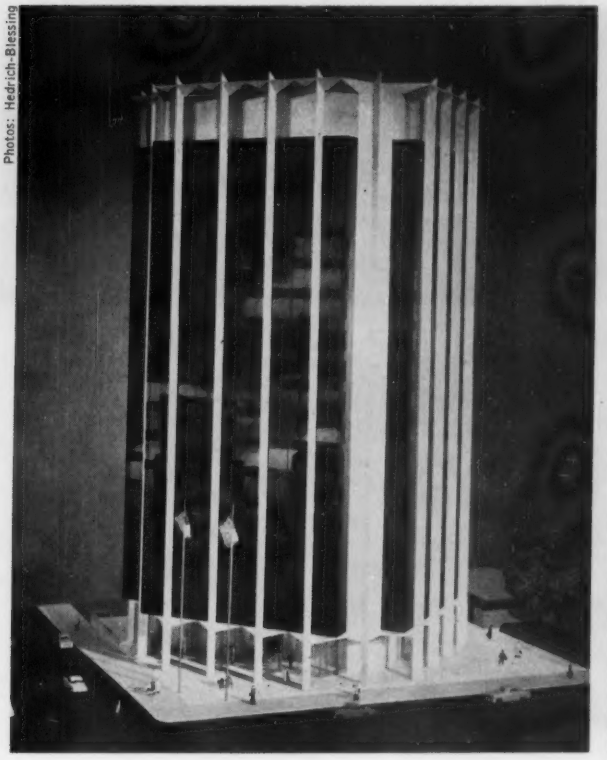
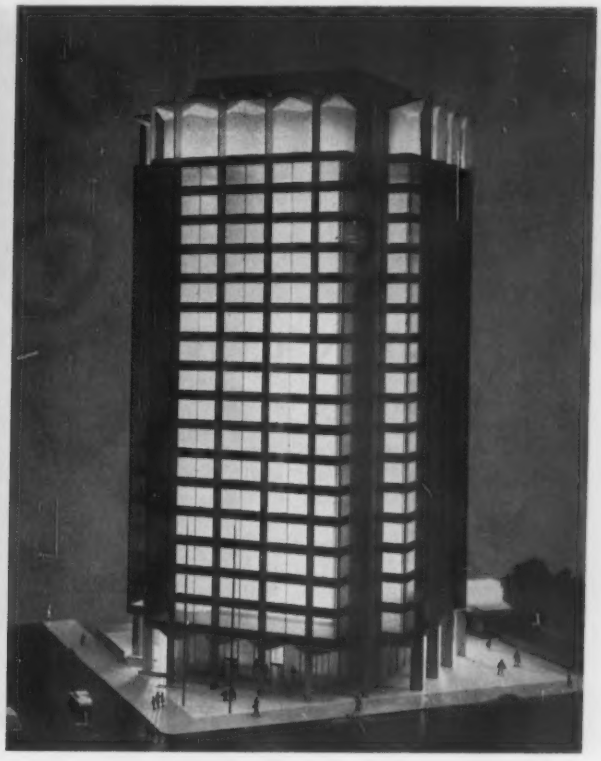
Photos: Hedrich-Blessing



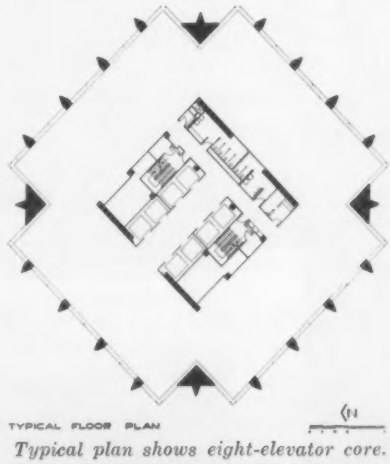


ON-THE-BIAS BUILDING FOR U. S. GYPSUM

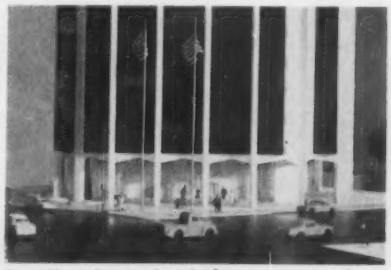
Building Will Create Downtown Chicago Plaza

CHICAGO, ILL. AIA President Philip Will Jr.'s firm, Perkins & Will, has designed the proposed national headquarters building of the United States Gypsum Company for a prime piece of Chicago real estate—the corner of Wacker Drive and Monroe Street. The architects report: "The new building will not replace any buildings of particular architectural or historic significance, but one building does have one of the last steam driven elevators in Chicago." Presumably, the Chicago Heritage Committee can rest easy over this one.

The headquarters building will be diagonally situated on its corner plot, creating a street-level plaza on all sides. Perkins & Will states that this arrangement will provide maximum natural light on all sides of the building and also discourage the pedestrian traffic jams which plague many street corners in metropolitan business districts. A basement and sub-basement will occupy the entire site beneath the plaza. The basement will contain an employee cafeteria, meeting room, electronic computer room, and other facilities.



Typical plan shows eight-elevator core.

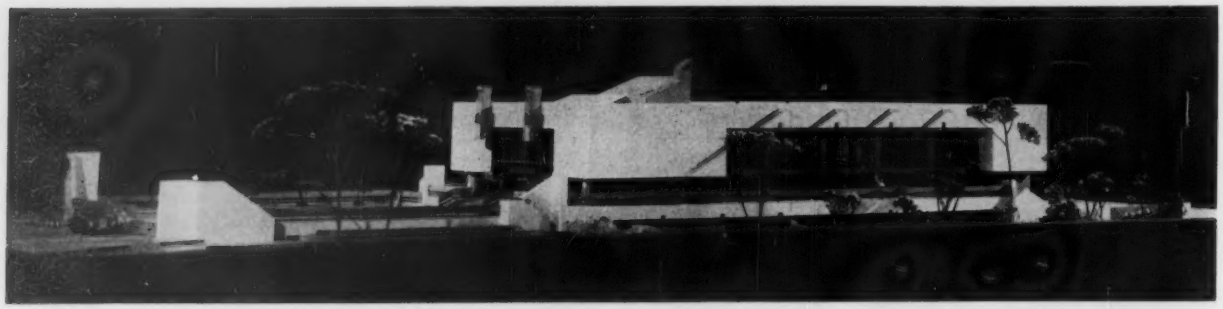


Detail at lower level shows corner plaza.

Since all faces of the building will be exposed to view, each will receive a similar façade treatment, with four white-masonry-covered columns reaching the height of the building and a black spandrel area between each floor. According to the architects, the piers at the inset corners will house some of the mechanical equipment plus telephone and other utilities. Structure will be structural steel frame with cellular steel deck. Glazing will be of polished, glare-reducing and heat-absorbing plate glass. Typical floors will have a 9-ft ceiling height, with acoustical tile ceilings and resilient tile flooring. A high-velocity, double-duct system will air condition the interior zones of the building; a high-velocity, single-duct system will be used for the exterior zones.

United States Gypsum will occupy the top floors of the building and have a reception area in the lobby. The remaining floors will be rented.

Perkins & Will's designer for the building is Ray Ovresat; partner-in-charge is John E. Starrett; project architect is Albin Kisielius. Interiors will be by Maria Bergson Associates.

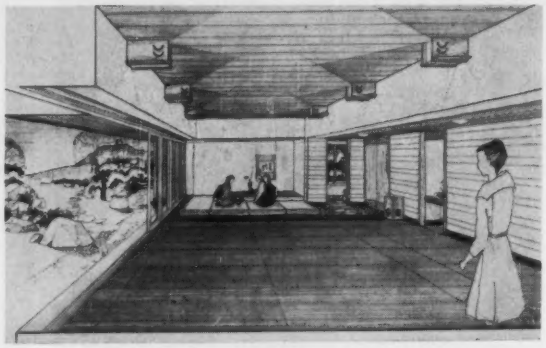


CANADIAN CENTER FOR ISSEI, NISEI, SANSEI

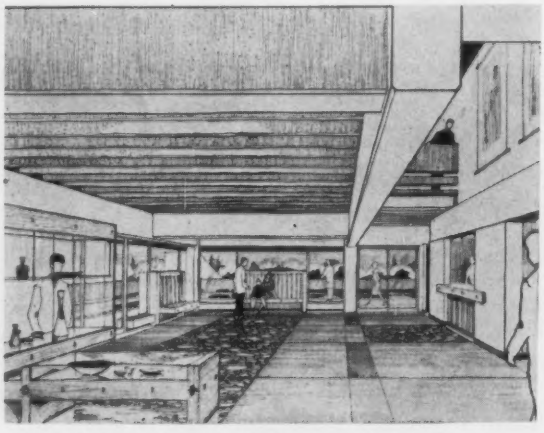
TORONTO, CANADA. A cultural, social, and recreational center for Canadians of Japanese extraction is scheduled to be erected in Flemingdon Park, a vast new redevelopment area in metropolitan Toronto.

"The Japanese Canadian Centre," designed by Raymond Moriyama Associates of Toronto, will have a large auditorium, lounge, judo hall, social rooms for gatherings and instruction in Ikebana (flower arranging) and the tea ceremony, a bowling alley, and food-service facilities. Since the center will be across from the proposed "TV City," facilities for televising productions in the auditorium will be provided.

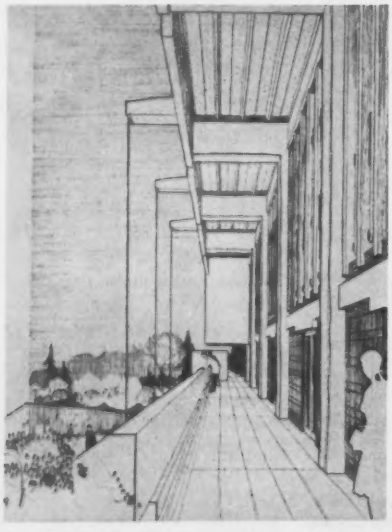
The project as seen in models and drawings is serenely Oriental in feeling, without being in any way a slavish reproduction of traditional Japanese styles. The concrete structure will be approached past a fountain through two main entrance doors, both surmounted by 15'-high Hikari beacon lights. This entrance *(see section)* is actually the roof of the bowling alley. Gardens of several kinds will surround the center, and balconies will ring the main level on three sides.



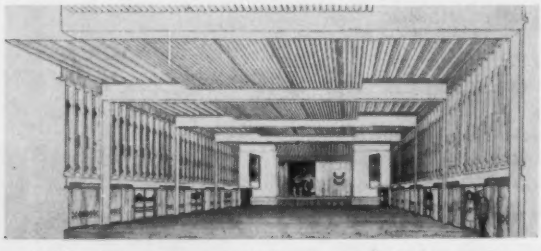
Ikebana and tea ceremony will be taught in social rooms.



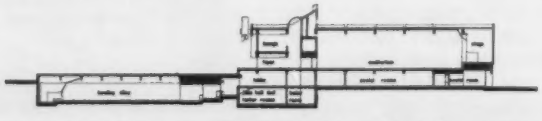
Balconies ring main foyer on three sides.



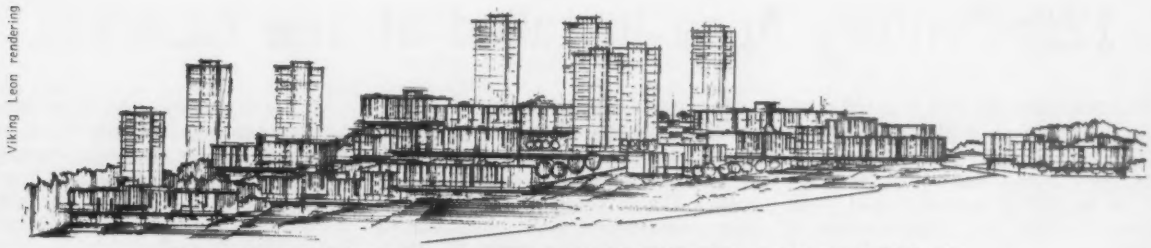
Chains carry rainwater from the roof.



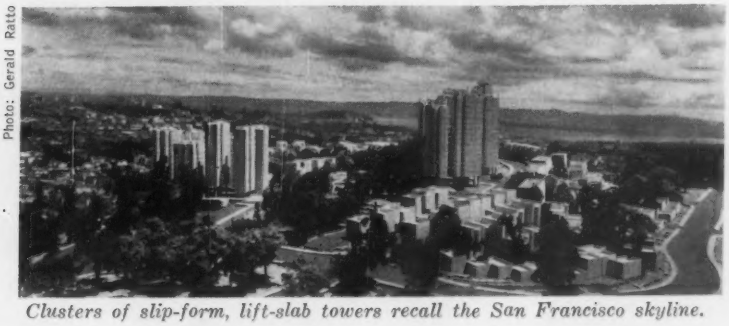
Auditorium opens onto balconies on both long sides..



Section shows multilevel plan of building.

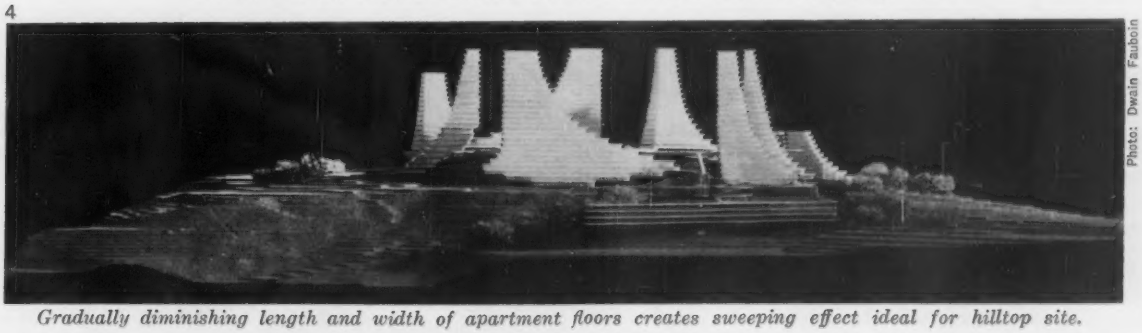


1 *Meandering wood-frame low rise counterpointed with reinforced concrete high rise.*



2 *Clusters of slip-form, lift-slab towers recall the San Francisco skyline.*

3 *Wood-frame low rise and concrete high rise in a controlled but artful approach.*



4 *Gradually diminishing length and width of apartment floors creates sweeping effect ideal for hilltop site.*

FOUR IMAGINATIVE PROPOSALS FOR SAN FRANCISCO REDEVELOPMENT

SAN FRANCISCO, CALIF. Four redevelopment projects seen here are the finalists in the Diamond Heights-Red Rock Hill competition conducted by the San Francisco Redevelopment Agency. They are by: (1) A. N. Contopoulos, Russell Gifford, Albert R. Seyranian, Karl E. Treffinger, and Paul A. Wilson; (2) Reid, Rockwell, Banwell & Tarics and Rai Y. Okamoto, with Royston, Hanamoto & Mayes; (3) B. Clyde Cohen and James K. Levorsen; and (4) Jan Lubicz-Nycz and John Karfo in association with Mario J. Ciampi and Paul W. Reiter. Jury was composed of Architects John Carl Warnecke, Ernest J. Kump, and Don E. Burkholder and Developers Gerson Bakar and Sanford B. Weiss. Architect William J. Watson was professional advisor. Jury viewed 90 entries, selected what it considered the 10 best, then boiled that choice down to the final four, from which hopeful entrepreneurs will pick to make their propositions to the agency.

The jury thought that proposal (1) showed respect for "the climatic conditions of the site by disposition of buildings in creating shelter of open spaces wherever possible."

Plan (2), according to the report, integrates the hill well with the surrounding green-belt area and provides "an attractive contrast with the well-scaled buildings."

Comment on proposal (3) included the observation that while the character of the plan is dictated by the "strict discipline" of the structures, the concept allows an adaptation of structures to topography.

The jury found proposal (4) "stimulating and creative," and an exciting possibility for the dramatic site. Despite the design's plastic nature, the jury could see possibilities of construction efficiencies.

12th-Century Apse Installed at The Cloisters

NEW YORK, N.Y. An 800-year-old apse is now embedded upon the bosom of Fort Tryon Park, site of The Cloisters, New York's enclave of medieval art. It is part of a new chapel wing of the museum. The limestone apse is replete with vigorous carvings of medieval demons as well as Biblical subjects.

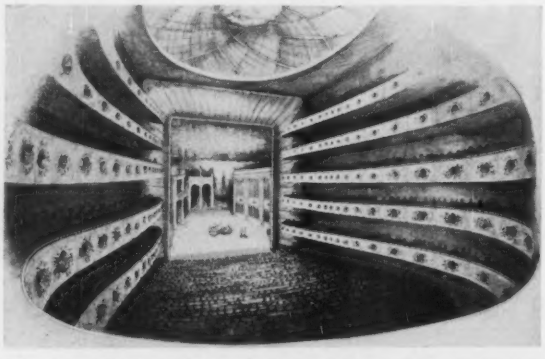
The apse is from the 12th-Century Spanish Church of San Martín de Fuentidueña in the town of Fuentidueña, thought to be a fortification during the Moorish wars. Considerable negotiations with the Spanish Government, dating back to 1935, when The Cloisters was first being planned, were necessary to bring the apse (as a nominal loan from Spain) to final erection in upper Manhattan. Planning of the reconstruction was done by James J. Rorimer, first as Curator of Medieval Art and then as Director of the Metropolitan Museum (of which The Cloisters is an adjunct), with Geoffrey Lawford of the firm of Brown, Lawford & Forbes.

JOHNSON GIVES A FILLIP TO N.Y. THEATER DESIGN

NEW YORK, N.Y. Plans for the N.Y. State Theater in Lincoln Center reveal that Philip Johnson Associates will use a continental seating arrangement for the orchestra (seats reaching from side aisle to side aisle with generous space between rows). Drawings shown in Johnson's office recently indicate that this project will continue the rather classical exteriors and decorated interiors which have characterized other buildings announced so far for the Center.

The horseshoe-shaped auditorium will have five tiers of shallow balconies above orchestra level. Side balconies contain a single row of seats and the lower three balconies are only five rows deep at the rear. Crystal lights on balcony fronts, and a stage curtain covered with plastic spangles, will lend a festive air to theater-going. Total seating, including the gallery, will be 2801.

First balcony level will feature a grand promenade—195′ x 60′—which will be used for exhibitions, banquets, and receptions. Three promenade levels will look down into this 45′-high room, which will open onto a balcony over the Center Plaza.



Theater will be used for ballet, modern dance, operetta.

Structure will repeat tan Roman travertine facing of other Center buildings.

PERSONALITIES

"The architect is becoming more and more of a planner, which is as it should be. We are concerned that architects recommend not only what is good for the site, but what is good for whole area." So **Richard C. Lee,**

mayor of New Haven, Connecticut, described his administration's attitude toward the architect's role in one of the country's most successful urban renewal programs.

Dick Lee—no one in New Haven would think of calling him Richard—was born in an unassuming house in the unassuming neighborhood where he still lives. After receiving a high school diploma, he worked for the *New Haven Journal-Courier*, served in the Army until a medical discharge in 1944, then directed the public relations department at Yale University. His political career started with two defeats as a mayoral candidate; the redevelopment platform was unpopular then. Now up for his fifth term, he is moving into the final, actual building phase of a program he announced in 1955 as a "Decade of Dedication." Political observers note that it may not be too long before Dick Lee brings his firebrand optimism to the U.S. Senate.

During his leadership in redeveloping and rehabilitating New Haven's seven separate redevelopment areas, Lee has worked with an impressive list of architects, including Paul Rudolph, Eero Saarinen, Skidmore, Owings & Merrill, Earl Carlin, Douglas Orr, Pedersen & Tilney, John Graham, Kahn & Jacobs, and Schilling & Goldbecker. His sympathetic but emphatic approach to architecture is characterized in his comment to Carlin when commissioning New Haven's Central Fire Station (pp. 150-153 JANUARY 1961, pp. 132-135 JULY 1961 P/A), "Give me a *strong* fire station, a fire station with a *soul!*"

At Yale commencement last June, Dick Lee, who as a local boy had picked up change selling programs at Yale football games, was presented with an Honorary Master of Arts degree. The citation read, in part, "With steadfast courage, faith, and vision, you have lifted New Haven from the midden of slums and stagnation and set her on the high road to a bright and prosperous future. The vigor with which you have advanced your program has made it a model for the entire country. . . ." High and well-deserved praise for a public official who has, in his city, given the lie to the saying (to paraphrase Mark Twain) that "Everybody talks about urban redevelopment, but nobody does anything about it."

Concentration on the architect as a practicing professional and as one responsible for his community as a whole rather than for an isolated building will be the emphasis of the University of Detroit's Department of Architecture under its new Chairman, **Bruno Leon.**

Leon, who comes to his new position from the faculty of the University of Illinois, describes his own educational background as one which combined the theoretical and the practical. "My education has been strikingly like the 'bottega' system of the classical period of Italy; an interweaving of theory and application on real problems." He graduated from both high school and the Henry Ford Trade School in Detroit in 1942; from the latter he got a certificate as tool and die maker. Following a few years at the University of Detroit, he entered the architectural department of the School of Design at North Carolina State College, from which he graduated *summa cum laude* in 1953. Leon then spent a year with the Buckminster Fuller Research Foundation, after which he worked with I. M. Pei, Pietro Belluschi, and Eduardo Catalano. In addition to teaching at the University of Illinois, he has lectured at M.I.T. Research projects which have engaged the new chairman's attention have included an investigation of the application of conoids to structures and—with Catalano and Guilio Pizzetti of Italy—applications of hyperbolic paraboloids to structures.

In September, Leon's department will institute a six-year curriculum with co-operative training in the last three years. The program, he says, "is predicated upon the idea that an architect must be a broadly educated person having knowledge in depth of philosophy, science, and the humanities."

The Drawing Society, a newly-formed foundation of artists, collectors, and curators, has announced as its first president JAMES BIDDLE, head of the American Wing of the Metropolitan Museum of Art; executive director of the society is BRUCE DUFF HOOTON, editor of *Drawing;* first publication of the group will be an illustrated monograph on the drawings of EDWIN DICKINSON . . . Winner of 1961 Copper and Brass Achievement Award from Copper & Brass Research Association is HUGH MOORE, JR., for design of a spire for St. Michael's Roman Catholic Church in Easton, Pa. . . . Sculptor for Hebrew Home for the Aged (JUNE 1961 P/A, p. 86) is JEAN TOCK . . . American Institute of Timber Construction elected as president WILLIAM B. LINDBERG, president of Unit Structures, Inc. . . . GEORGE I. SMITH, manager of the Acoustical Department of Celotex, was re-elected president of Acoustical Materials Association . . . GORDON H. SMITH of Albro Metal Products Corp. was elected president of Metal Curtain Wall Division of National Association of Architectural Metal Manufacturers . . . ADOLPH R. SCRIMENTI was made president of New Jersey Society of Architects *and* N.J. chapter of AIA.

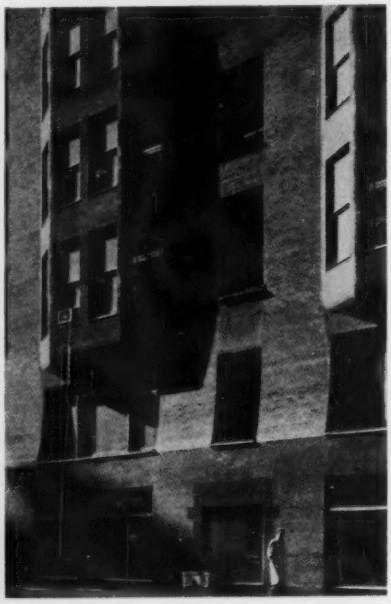
Sketches by Romano Cobelletti

Koppers Awards Seven Design Scholarships

Fourth-year students at seven architectural schools were recently awarded $1000 scholarships in the fourth annual contest sponsored by the Tar Products Division of Koppers Company, Inc. Each school chooses its own design problem and judges its students, who compete only against their classmates, not on a national basis. All designs must use flat, built-up roofing. This year's winners were: Charles Gwathmey, Yale University, motel on a promontory *(shown)*; George S. Winnacker, University of California at Berkeley, professional-commercial center; Frederic Wemlinger, University of Illinois, 12-story office building and pavilion; William Phillips, Syracuse University, small library; Robert Johnson, Clemson College, 150-bed hospital; and Roy Sidney Gee, University of Houston, civic coliseum for the City of Houston.

Postcard Series on "Chicago School"

A handsome series of 10 postcards has been prepared by the Chicago Heritage Committee on as many "Chicago School" buildings. The cards are available at $1.00 per set, proceeds to go for further publications on Chicago architecture by the Committee. In addition to Burnham & Root's Monadnock Building (1891, *shown*), the series includes the Adler & Sullivan civic center auditorium (1887-89), Wright's Robie House (1909), his Unity Temple (1906), 30 North La Salle Building by Adler & Sullivan (1893, originally the Chicago Stock Exchange), the Reliance Building of Burnham & Root (1894), the Republic Building of Holabird & Roche (1905-09), the Cable Building of the same firm (1899), the recently demolished Garrick Building of Adler & Sullivan (1891-92), and Sullivan's Carson Pirie Scott & Company Building (1899-1904). The Committee was helped in the project by contributions of some of the buildings' owners: Webb & Knapp (Robie House), Aldis & Company (Monadnock Building), and Sudler & Company (30 North La Salle Building). Arrow Photocopy printed the cards for a song, and the photographs are by Richard Nickel,



secretary of the Committee. Sets can be obtained from Chicago Heritage Committee, P.O. Box 4513, Chicago 80, Ill.

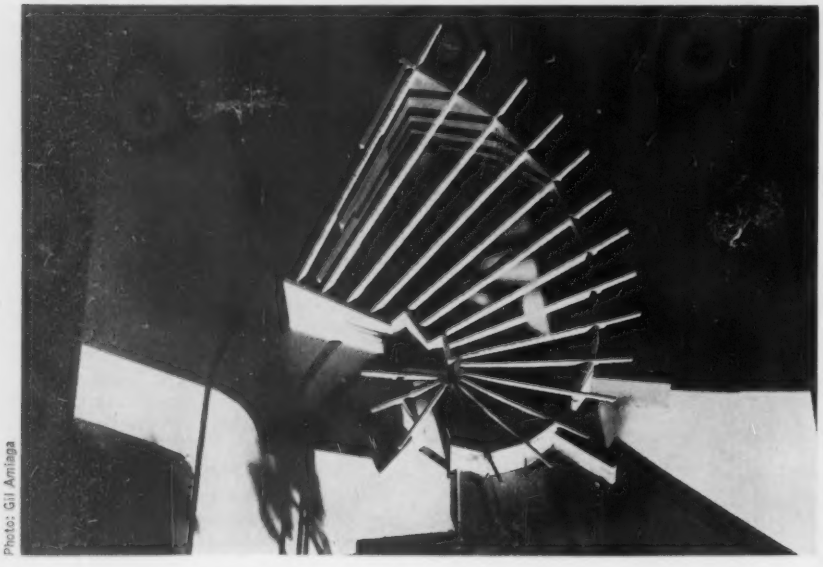


Photo: Gil Amiaga

NAUTILUS BUT NICE

The Nauraushaun Presbyterian Church for Pearl River, N.Y., was the subject of an interoffice design competition at Ketchum & Sharp, New York. Winning designer was Roy Euker, who suggested this spiral form resembling a nautilus shell. From the narthex, the tight part of the spiral, the space will open in a long, sweeping curve to enclose a major part of the nave. This pattern of laminated wood beams will continue within the nave, focusing attention toward the chancel. Church is part of a project which also will include two classroom wings, fellowship hall, and bell tower. Other elements will follow the sanctuary. Associate architect: Ray E. Cumrine.

Nippy Design for Plumbing Showroom

Circular turntables suspended over pools of water support plumbing, heating, and air-conditioning products of Crane Company in new Park Avenue showroom designed for showing line

NEWS from Dow Corning

Stronger, drier walls

Tests prove that Silaneal improves bond, reduces water penetration through joints

Hold a brick in your hand. Feel it; heft it. It's heavy, solid, *strong.* But how strong a wall can you build with it? That depends, of course, on the bond between the brick and its brothers. Here is where Silaneal® makes the difference.

This plant-applied sodium siliconate treatment makes brick water repellent. Water absorption of the brick is controlled allowing mortar to cure properly. The bond at each brick-mortar interface is improved making stronger, more moisture-resistant walls.

Here's proof. The picture at left shows one of more than 100 test walls constructed under SCPRF-prescribed conditions to determine the effects of Silaneal on structural strength. Plastic bag (arrow) applied uniform transverse pressure to determine failure point. Result: Silaneal treated high absorption brick showed definite improvement in wall strength over similar but untreated brick.

Rain is mastered, too. Tests, simulating wind-driven rain, have shown repeatedly: No leakage through wall panels built of high suction brick treated with Silaneal; severe leakage at mortar-brick interfaces when using untreated brick.

And brick stays clean. Soot and other airborne dirt that fall on high absorption brick are pulled into the brick with the first rain. Silaneal makes the surface of the brick water repellent and dirt is *washed away* with rain. And because water can't get into brick treated with Silaneal, efflorescence is minimized.

If you want more data on these tests or more information on Silaneal including a list of manufacturers offering Silaneal treated brick, write Dow Corning Corporation, Midland, Michigan, Dept. 6820.

SILANEAL®
keeps brick clean

Dow Corning CORPORATION
MIDLAND, MICHIGAN

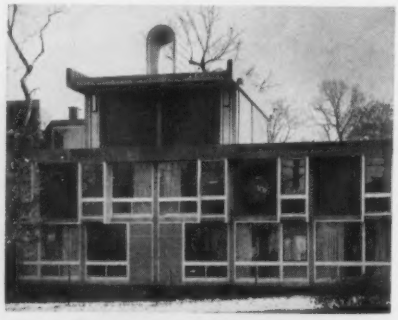
to architects, designers, engineers, and contractors. Exhibition was designed by Griswold, Heckle & Keiser, Inc., on "Japanese garden" theme. Other touches purported to be evocative of old Nippon are a wooden bridge arching to a conference platform and simulated stone walkways.

Out with Old, In with New in Indianapolis

A 373-ft glass tower in Indianapolis, the Indianapolis-Marion County Building, will be Indiana's tallest and largest office building when it is completed next year. It rises behind a well-known, 86-year-old courthouse which will be razed to make way for a 3-level, 625-car, underground garage. The new 28-story tower is clad in gray Thermopane insulating glass with Vitrolux spandrels and holds city-county administrative offices. The wings hold the courts and police headquarters and are faced in Indiana limestone and granite with glass. An observation lounge tops the building. Architect: Allied Architects & Engineers of Indianapolis, Inc.; Consulting Architects: Harley, Ellington, Cowia & Sterton.

1961 Boston Arts Festival Architectural Awards

Seven New England architectural projects were on display June 8-25 in Boston's Public Garden as winners of the 1961 Boston Arts Festival Architectural Awards. The contest is open annually to any architect for a project completed in New England within the last five years. The winners in each of five categories were: *Religious*—World Religions Center, Harvard University, Cambridge, Mass. *(shown)*, Architect, Sert, Jackson & Gourley, Cambridge; *Residential* — residence, Essex, Conn. *(shown)*, Architect, Ulrich Franzen, New York, N.Y.; residence, South Lyndeborough, N.H., Architect, George W. W. Brewster, Boston; summer residence, Chatham, Mass., Architect, John B. Rogers, Wellesley, Mass.; *Commercial* — Headquarters Office Building, Massachusetts Blue Cross-Blue Shield, Boston, Mass., Architect, Anderson Beckwith & Haible and Paul Rudolph, Boston, Mass.; *Educational* —L. G. Hanscom Elementary School,



Bedford, Mass., Architect, The Architects Collaborative, Cambridge, Mass.; *Public Use*—Loeb Drama Center, Harvard University, Cambridge, Mass., Architect, Hugh Stubbins & Associates, Cambridge, Mass. Jury for the competition consisted of Vincent Scully, Yale University School of Art and Architecture; Wilhelm-Viggo von Moltke, Chief Designer, Philadelphia City Planning Commission; and Harry M. Weese, Architect, Chicago, Ill.

Three-Stage Library for Rhode Island College

Proposed main library for Rhode Island State College, designed by Lester J. Millman Associates of Providence, will have exposed structure of painted white concrete. Infilling will be square-cut bluestone panels; windows will be green-tinted, glare-reducing glass in wood frames. The deep gallery across the front of the building will be furnished with benches for students wishing to study or socialize outside. The patterned treatment of the roof cornice is simply an interruption of the waffle-slab roof construction, also painted. The library will be occupied for its primary purpose in three stages, gradually dispossessing tenants such as the college's TV facilities, fine arts exhibits, and curriculum research center until an eventual capacity of 850 students and 300,000 volumes is reached.

Government Grants

Program announcement for U.S. Government grants under the Fulbright and Smith-Mundt acts has been issued for 1962-63 period. It includes opportunities for lecturing and research in architecture and/or city planning in Finland, France, Greece, Italy, United Arab Republic, and United Kingdom. For information, write Conference Board of Associated Research Coun-

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cils, Committee on International Exchange of Persons, 2101 Constitution Ave., Washington 25, D.C.

New Name at Cornell

Name of Housing Research Center at Cornell University has been changed to Center for Housing and Environmental Studies. New name will better reflect the scope of the Center's interest and activity, according to Glenn H. Beyer, director of the Center.

COMPETITION

"Edificio Monumental Peugot" is subject of an international design competition for a major high-rise office building in Buenos Aires, Argentina. In addition to corporation offices, the structure will contain cultural facilities, a shopping center, and a large automatic garage. Building, for which there is a generous first prize plus the commission to prepare working drawings, must be completed within 18 months from date of jury's decision on March 1, 1962. Registration forms are available from The Assessor, Frederico A. Ugarte, Architect, Calle Montevideo No. 942, Buenos Aires. Completed forms must be returned to him by September 30, and competition closes January 12, 1962.

SHERATON HOTEL FOR HAWAIIAN CLIFF-DWELLERS

An enormous outcropping of lava rock which rises abruptly out of the ocean to a height of 80 ft and then slopes gently back toward a golf course will be the site of the new Sheraton Hotel at Kaanapali Beach, Maui, Hawaii. Entrance to the 150-room hotel will be on top of Black Rock, a level which will also contain a restaurant with a view, bars, and other facilities. From the public areas, an elevator will carry guests down through the main block of rooms which hang over the face of the rock. The beach level will have a swimming pool and beach facilities, and small "Polynesian" cottages will spread out in a curve. Architect: Wimberly & Cook Architects, Ltd.

Industrial Designer Does World's Fair Groundbreaker

The first exhibit building to break ground at the 1964-65 New York World's Fair was designed by Walter Dorwin Teague Associates, Industrial Designers, for the American Gas Association. A cluster of translucent canopy roofs will cover the exhibit area and restaurant, apparently without any enclosing walls. The entrance and exit will have the largest air curtain walls ever installed, and the 200-person restaurant will have air walls on three sides. The main area of the building will be enclosed by plexiglass walls installed in a way similar to the glass in invisible store windows. Not content with achieving the ultimate in merging the indoors with the outdoors, the designers also plan to have exotic birds flying about (confined by the air curtains, and, presumably, alert waiters). An elevated revolving ring, 110′ in diameter, will carry visitors through the building for a quick four-minute preview of the displays. The 300′ x 130′ area will be entirely air conditioned by gas. For a comment on industrially-designed Fair architecture, see last month's "P.S."

CALENDAR

"Eyes West," a conference for people concerned with the graphic arts, will take place September 15–17 on the Monterey Peninsula in California; among the participants will be Louis I. Kahn and Lewis Mumford...Convention of Sliding Glass Door and Window Institute will take place in Scottsdale, Ariz., September 24–28 . . . Second Industrial Building Exposition and Congress will occupy New York's Coliseum September 25–28 . . . Architectural Exhibition of Hospitals will be highlight of 63rd annual meeting of American Hospital Association, Atlantic City, N.J., September 25–28... Island meeting at Santa Catalina, Calif., is planned by American Society of Industrial Designers, October 5–8 . . . Members and admirers of Prestressed Concrete Institute will convene in Denver, October 15–19 for meeting having as its theme "New Opportunities in Structural Design"; keynoter will be Thomas Creighton, Editor of PROGRESSIVE ARCHITECTURE . . . American Concrete Institute's 14th regional meeting will be in Birmingham, Ala., November 1–3; its next annual convention will be March 12–15, 1962, in Denver (quite a place for concrete, evidently) . . . Gulf States AIA will have its 11th annual regional conclave in Baton Rouge, La., November 15–18 . . . Schedule for "Plastics in Buildings," traveling exhibition of Society of Plastics Engineers, which had its première at the Springfield, Mass., Museum of Fine Arts, is as follows: September 1–30, Memphis Museum, Memphis, Tenn.; October 8–30, Columbia Museum, Columbia, S.C.; December 1–31, Museum of Arts, Birmingham, Ala.; January 15–February 11, 1962, National Association of Homebuilders, Washington, D.C.; March 1–31, Museum of Arts and Crafts, Columbus, Ga.; April 15–May 15, Walker Art Center, Minneapolis, Minn.

20 Scholarships Awarded

Scholarships totaling $10,000, at $500 per scholar, were given to 20 undergraduate architectural students by The Ruberoid Company. Program was established last year and will be continued by annual grant.

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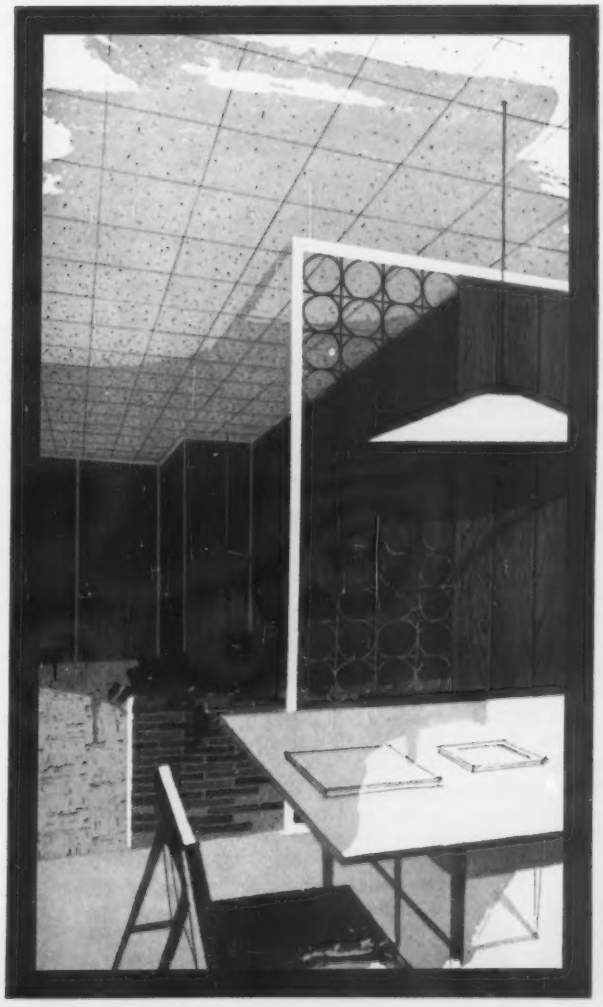

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NEW HOUSING BILL EXAMINED

by E. E. Halmos, Jr.

Most important aspects of the new housing legislation — as far as architects are concerned — do not necessarily concern the amount of money involved.

Greatest importance for our field attaches to three provisions: (1) the heavy emphasis on planning; (2) encouragement for construction of low-rent, mass-housing units, both by public and private agencies; (3) the probable effect on prices of building materials and labor.

You've seen long discussions of the housing program itself in your newspapers. The omnibus bill passed by Congress (despite a couple of close calls) went through in just about the form President Kennedy proposed. It is a vast and confusing document — but here's a thumbnail sketch of provisions:

1. Money. The four-year program will cost anywhere from $4.9 billion to $9 billion, depending on how you read it. A total of $4.9 billion is what supporters said was provided; the extra $4.1 billion can be raised from further authorizations for Federal National Mortgage Association, public housing programs, and $500 million okayed (but not appropriated) for urban transit work and the like. Allocation will be as follows:

2. $2 billion for urban renewal.

3. A total of $1.2 billion for long-term loans for college housing.

4. $500 million for low-interest community facility loans.

5. $100 million for housing for the elderly.

6. 100,000 more public housing units.

7. $100 million for aid to communities in buying land to preserve "open space."

8. $208 million for farm housing.

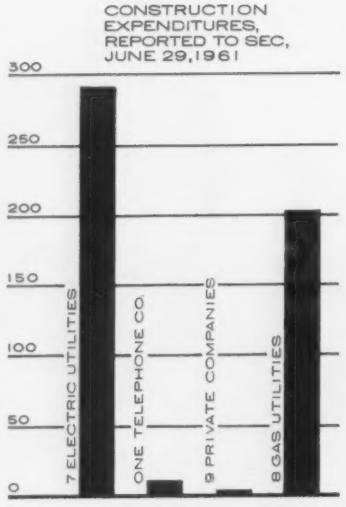
9. Loans at low-interest rates are authorized to build low-rent housing projects; FNMA gets added money to buy up mortgages; money is provided for experimental housing programs.

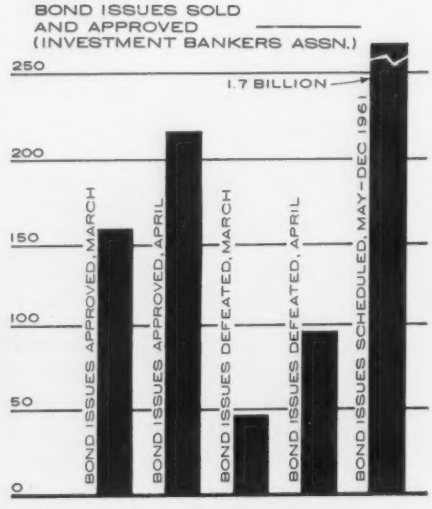
In addition, the key Administration proposal — 40 year, no down-payment mortgages for middle-income families — got back into the bill virtually intact, despite efforts to knock it out in both houses. As finally passed, the bill does hold new-home mortgages to 35 years and requires a 3 per cent down-payment — but the "down-payment" also includes closing costs, and the 35-year limit can be raised to 40 in "hardship" cases, which are not defined.

Emphasis on planning, most of which would appear to involve architectural efforts and talents, is found in a number of places in the program.

For example, there's an increase of $30 million in funds for urban planning, and Federal share of the cost of such planning is raised from half to two-thirds; "planning" definitions are changed to include preparation of comprehensive mass-transit surveys; another $10 million is added for financ-

Continued on page 52





BOND ELECTION RESULTS – MAY 1961 BY USE OF PROCEEDS

USE OF PROCEEDS	APPROVED		DISAPPROVED	
	AMOUNT	NO	AMOUNT	NO
EDUCATION:				
ELEM. & SEC.	69,274,000	68	52,824,000	39
OTHER	9,590,000	7	1,796,000	2
ROADS & BRIDGES	10,627,000	15	8,753,000	5
WATER & SEWER	85,336,000	51	12,080,000	16
OTHER UTILITIES	295,000	2	210,000	2
HEALTH & WELFARE	2,865,000	10	2,110,000	4
RECREATION	2,112,000	7	9,042,000	11
PORTS & AIRPORTS	23,245,000	3	——	0
INDUSTRIAL	8,200,000	4	1,850,000	1
REFUNDING	——	0	——	0
FLOOD CONTROL	800,000	1	——	0
PUBLIC HOUSING	——	0	——	0
VETERANS AID	——	0	——	0
ADMIN. & OFFICE BLDG.	145,000	2	2,237,000	3
UNCLASSIFIED	3,742,000	15	5,378,000	12
TOTALS	$ 216,231,000	185	$ 96,280,000	85

BOND ELECTIONS SCHEDULED AS OF MAY, 1961

MONTH	AMOUNT
1961	
JANUARY	——
FEBRUARY	——
MARCH	NO DATE
APRIL	5,000,000
MAY	302,997,000
JUNE	77,173,000
JULY	7,815,000
AUGUST	——
SEPTEMBER	6,395,000
OCTOBER	4,340,000
NOVEMBER	1,248,879,000
DECEMBER	——
NO DATE SET	131,328,000
TOTAL	$ 1,783,927,000

USE OF PROCEEDS	AMOUNT
EDUCATION:	
ELEM. & SEC.	135,766,000
OTHER	4,579,000
ROADS & BRIDGES	31,742,000
WATER & SEWER	266,169,000
OTHER UTILITIES	921,316,000
HEALTH & WELFARE	57,440,000
RECREATION	8,222,000
PORTS & AIRPORTS	130,578,000
INDUSTRIAL	2,152,000
REFUNDING	40,000
FLOOD CONTROL	25,500,000
PUBLIC HOUSING	1,000,000
VETERANS AID	——
ADMIN. & OFFICE BLDG.	49,430,000
UNCLASSIFIED	149,993,000
TOTAL	$ 1,783,927,000

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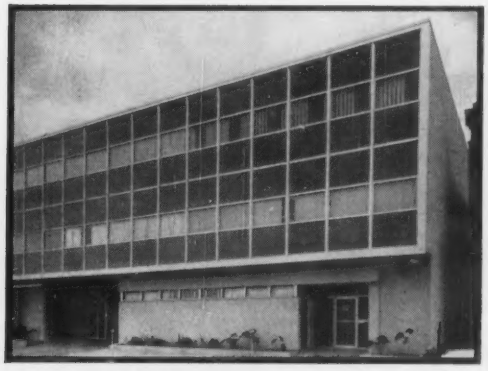
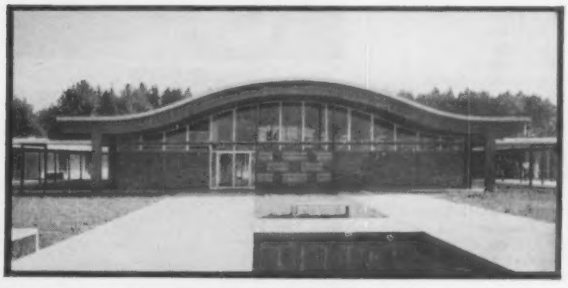
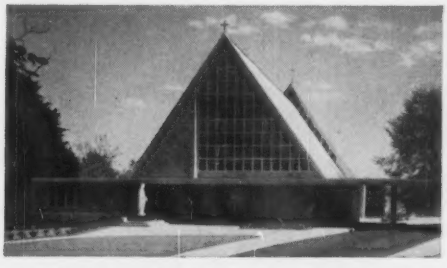
Baptist Hospital Medical Center Building in Memphis, Tenn., has Vampco fixed ventilators. Architect: Walk C. Jones



Excellent example of light construction with Vampco aluminum products is the Professional Enterprise, Inc. building in New Orleans, La. Architects: Favrot-Reed-Mathis-Bareman



Gordon Cornwell, imaginative architect, designed this high school located in Traverse City, Michigan; used Vampco window walls, doors and windows.



Church of The Immaculate Heart of Mary in Maplewood, New Jersey, incorporates Vampco aluminum windows and window walls. Architect: Arthur P. Rigolo

Entrance to Science Hall, Ferris Institute in Big Rapids, Michigan, has Vampco aluminum walls and doors. Architects: Roger Allen and Associates.

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Newfoundland Radio Station VOCM
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Radio Station CJAD • Montreal, Canada
Tediskis Supermarket
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Chellels Supermarket
Barrington, R.I.
Howard Johnson Restaurant
Portsmouth, N.H.
Radio Station WEEL • Medford, Mass.
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Lines Orchids, Inc.
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Warwich, R.I.
Beauchamp Dairies • Winter Haven, Fla.
Rider College • Lawrence, N.J.
Central Service Station • Editson, N.Y.
Gulf Power Co. • Fort Walton, Fla.
Bessemer Electric Service
Bessemer, Ala.
City of Nashville • Nashville, Tenn.
Water Resources Board (State of New
Hampshire) • Manchester, N.H.
R E A (Clay Union Electric Corp.)
Vermillion, S. Dak.
Michigan Bell • Detroit, Mich.
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Lake Geneva, Wisc.
California Interstate
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Toll Road Service Area—Near Ohio Line,
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KVOO-TV • Tulsa, Oklahoma
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Chambersburg, Pa.
Sioux Falls School (Axtell Park Jr. H.S.)
Sioux Falls, S. Dak.
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Radio Station WBRY • Waterbury, Conn.
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Sewage Disposal
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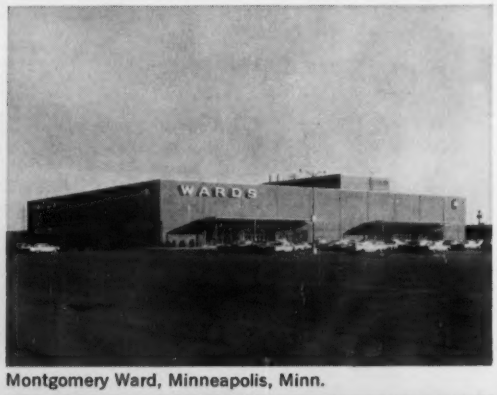
First Federal Savings & Loan, La Crosse, Wisc.

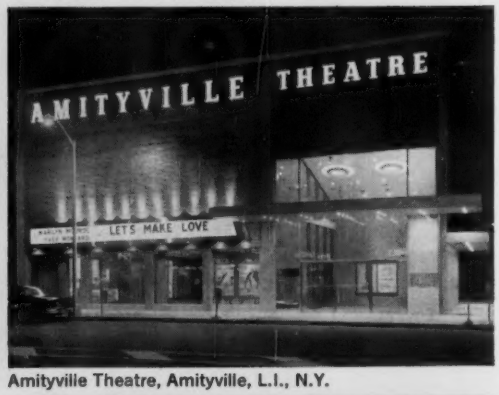
Las Vegas Convention Center

Central & Southern Florida Flood Control District



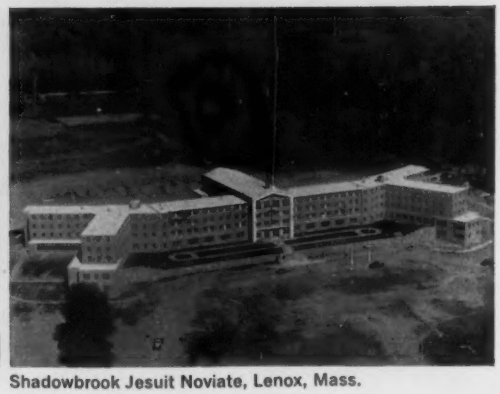
Montgomery Ward, Minneapolis, Minn.

Phillips Restaurant Lounge, Ft. Lauderdale, Fla.



Amityville Theatre, Amityville, L.I., N.Y.

Farm Bureau Mutual Insurance, Concord, N.H.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MAIN SKI LODGE is designed in Early American. After just one year of operation plans are being made to add 50% more space to this 6800 sq. ft. building. And Insulite Roof Deck, Insulite Primed Siding and Insulite Bildrite Sheathing are specified for this new addition, too!

3" INSULITE ROOF DECK, applied with the slope of the roof, complements wood beams. Prefinished inside surface requires no painting or waxing. Insulite Roof Deck is modern, practical and attractive. It meets exacting requirements for structural strength, insulation value, vapor control and interior beauty.

ROOF DECK IS RIGID—easily supports weight of workmen and equipment. Shingles were applied directly to deck —although bitumen, roofing felts and embedded gravel can also be used. Insulite Roof Deck is available in 2′ x 8′ tongue and groove panels—2″ and 3″ thick.

ARCHITECT: James, Meadows and Howard, Buffalo, N.Y.
CONTRACTOR: Hines and Kirst, Hamburg, N.Y.

INSULITE PRIMED SIDING goes up fast and easy on Insulite Bildrite Sheathing. This attractive siding is easy to work with. Has no structural grain, knots or split ends. Insulite horizontal Primed Siding is now available in 8″, 10″, and 12″ widths.

Ski lodge gets high beam ceiling on floor-level budget with Insulite Roof Deck

ARCHITECT R. MARWELL JAMES, A. I. A., incorporated open beam ceilings into his plans for Kissing Bridge Ski Lodge, in the Colden Valley, south of Buffalo, N.Y. To keep costs down while realizing the full beauty of this type of design, he specified Insulite Roof Deck.

4 IN 1 SAVINGS. Insulite Roof Deck is roof decking, insulation, vapor barrier and prefinished ceiling—all in one cost-saving product!

Application time is cut 45% because only one material is applied. No separate roof boards, insulation, lath and plaster, and interior decoration.

INSULITE PRIMED SIDING AND BILDRITE SHEATHING were also specified by the architect. The 12″ horizontal lap siding used in the lodge casts attractive deep shadow lines. On other parts of the lodge, 4′ by 8′ panels of plain Insulite Primed Siding were used for board and batten construction.

Rugged Insulite Sheathing was selected because of its effective vapor control, outstanding insulating value, good bracing strength.

For technical data and literature on Insulite Roof Deck and Primed Siding write Insulite, Minneapolis 2, Minnesota.

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Continued from page 46
ing public works planning.

Also, mortgage insurance is provided for sale or rental property construction "involving uses of advanced technology in design, materials or construction."

As to encouragement for mass-rental housing units (much to the dismay of private real estate groups and banking organizations), the bill authorizes the Federal Housing Administration to insure mortgages bearing interest at "below market" rate (as low as 3⅛ per cent) for rental housing of five or more units. This is aimed at nonprofit organizations, limited dividend corporations, or co-operatives, but the definitions are so framed that observers believe many public agencies could also participate.

It is anticipated that this provision will spur a boom in mass-housing construction; but opponents have been much concerned that the result will be, in effect, public housing of a sort which will attract tenants at the expense of private housing developments built without the advantage of such favorable terms.

Incidentally, the maneuvering of this vast bill through both houses of Congress was a masterpiece of political know-how. There was plenty of steam behind opposition, which included the opposition's charge that the bill's provisions would completely undermine the advantages of free enterprise in home ownership. (The 40-year mortgages would be so low in payments, and the houses so unlikely to have any value at the end of the mortgage period, that the program, so the opponents claimed, is nothing more than Government-subsidized rental.) But concessions were made where needed (such as added money for rural housing, added money for facilities programs in small towns), to attract the needed few votes to carry the measure.

Passage of the housing bill, by the way, doesn't mark the end of Congressional efforts in this area.

For one thing, there's a bill, already passed by the Senate, which provides $500 million in Federal lending authority for World War II and Korean War veterans who can't obtain local financing.

For another, there's a further attempt by Senator Clark of Pennsylvania to get Federal money to support 300 scholarships in planning (each year)—a measure that was introduced as a separate bill (S 2145) after it was knocked out of the omnibus housing bill.

And there's one disturbing note in all this: High officials in the Treasury Department are beginning to talk more loudly about recovering some of the money that makes home-ownership advantageous. What's been discussed is a ruling that would either forbid or reduce the deduction a homeowner can take for interest payments.

Call Your Congressman

More work for architects is included in that list of 20 new public buildings and 29 major alteration jobs—for a total expenditure of $207.7 million—okayed by the Senate's Public Works Committee.

New buildings will account for $156.5 million of the total. Largest authorizations are: $42.7 for a courthouse and Federal building in Philadelphia; $42 million for Federal Office Building No. 5 in Washington; $13.1 million for a Federal office building in Louisville; $11.7 million for a courthouse and office building in St. Paul; $9.6 million for an office building at Jacksonville, Fla.

Biggest alteration project is a $6.9 million job at the Pentagon in Washington.

SOCIAL SECURITY

You'll find an additional one-eighth of one per cent tax bite on your social security payments (both for employers and employees) starting next January 1.

The extra percentage will be required to finance increased benefits (including retirement for men at age 62) approved by Congress.

Pay for Government Consultants

The Senate seemed to be having some trouble keeping its various actions straight in regard to pay for consultants.

The full Senate, for instance, approved a bill providing that the Department of Commerce could pay consultants up to $100 per day.

But the Senate Appropriations Committee (dealing with the Interior Department's appropriation) decried the practice of paying consultants $75 a day (as is done by the Bureau of Reclamation), and "suggested" that no Federal department pay more than the traditional $50 a day unless specifically authorized to do so.

Dead Tax Relief

On taxes, the perennial bill to give tax relief to the self-employed got through the House with little trouble, then went to the Senate's Finance Committee, where for three years running it has been allowed to expire.

The bill would aid professionals, small businessmen, and farmers by permitting deductions of up to $2500 a year from Federal income taxes if the money were put into self-financed retirement programs.

For Your Shelves

Architects and other professionals in private practice will be interested in a new handbook now available (for 45 cents) from the new Area Redevelopment Administration of the Department of Commerce.

The handbook lists more than 100 types of assistance offered by Federal agencies to communities.

Among the types of assistance offered: technical advice, consultation, research, and surveys.

FINANCIAL

Very definitely paced by a reviving housing industry, construction continued to show a strong upward trend in June and July, continuing a pace that has been noted in P/A's statistics since the beginning of the year.

Even well before the effects of the new Federal program could be expected to take hold, housing has been showing every sign of strength. In May, for example, the Census Bureau reported housing starts at 127,300, compared to 116,100 for April, and getting close to the 130,000 rate of May 1960. That would indicate a total of 1,276,000 units for the year.

That rate is bolstered strongly by the fact that mortgage credit is again generally available, while interest rates (under Government pressure) have dropped slightly. According to FHA, secondary market prices for 25-year, 5½ per cent new-home market prices were even up slightly (to $97.9 per $100 of outstanding loan amount), which is further evidence of strength in the money markets.

Also bolstering the general health of the industry were these factors:

1. Public construction outlays in the first third of 1961 were up 15 per cent over a year ago, with school expenditures, highways, and conservation projects leading the way.

2. Personal income in May moved up to $2.5 billion, for a seasonally-adjusted annual rate of $413.5 billion—well over last year's high of $410 billion.

3. P/A's indicators of private construction expenditures continued to show steady investment planning, and heavy support for public works expenditures on local levels.

4. The Department of Commerce reported that businessmen planned to spend at a rate of $34.5 billion for the rest of 1961 on plants and equipment.

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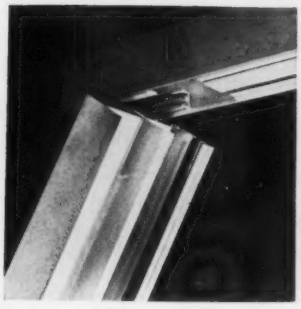
Curtain Wall Assembles Without Nuts and Bolts



LONG BEACH, CALIF. Low-cost aluminum curtain-wall system assembles as shown into a watertight unit without the use of nuts and bolts. Features of "PAC/Wall 710 Series" are: an unbroken watertight seal throughout the entire wall; lapped rather than butted connections which permit expansion while maintaining weatherproof quality; and a new "T" design mullion having a thin profile. The system has been tested in the company's research facilities and found to meet all requirements for deflection and watertight integrity as set forth in the Curtain Wall Manual of the National Association of Architectural Metal Manufacturers. When assembled, the interlock is sealed with a polysulfide rubber to create an impervious, lapped jointery without conventional butt and screw connections. The series, which is for one- and two-story construction, is said to "combine latitude in design with the ordering and installation efficiencies of modular materials."

The system, which is designed for maximum shop prefabrication and minimal field work, can be erected into a complete, installed wall for an average cost of $2.30 per sq ft. Pacific Curtainwall, Inc., 600 W. 15 St., Long Beach 13, Calif.

On Free Data Card, Circle **100**

RECESSED LINE FEATURES "MAXIMUM LIGHT, MINIMUM INTRUSION"

LOS ANGELES, CALIF. Innovations in recessed lighting based on proper control of light intensities and inconspicuousness of the light source have been incorporated into Marco's "Illumiline Collection."

Among the problems considered to have been solved is the ease of altering quantity and intensity of light after installation. Use of the "Adjustomatic Hub," a mechanism that permits three positions for the socket plus a variety of bulb sizes, provides this post-installation flexibility.

Ease of installation, regardless of ceiling thicknesses. New "Universal Mounting" is adjustable to a variety of positions, from ¼" to 4¼", encompassing a wide variety of thicknesses. Bracket will accommodate either 18" or 24" bar hangars.

Glare reduction. A lower reflector is used to complement the upper reflector so that light beams bounce between and ultimately are funneled through the aperture with virtually no glare. No baffles are required when this principle is used.

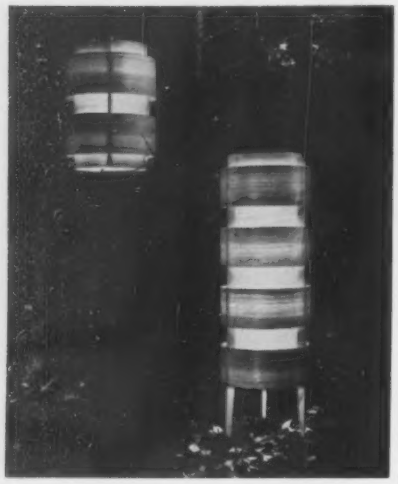
Precise control of quantity and quality of light. A series of six new lenses is a feature of the collection, including three new "low brightness" lenses by Holophane. Combinations of reflectors and lenses unite for low brightness and high performance.

Marvin Electric Manufacturing Co., 648 S. Santa Fe Ave., Los Angeles, Calif.

On Free Data Card, Circle **101**

Multicone baffles serve to cut glare.

Perforated lathe receives ceiling materials.



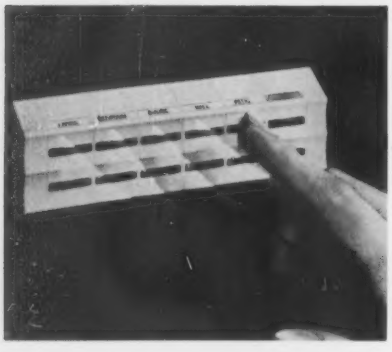
Translucent Grain

Circles of unfinished shaven wood arranged in tiers compose this pendant fixture and standard lamp. Illumination is ornamented by pale gold translucent wood grain. One of a series of lighting fixtures fabricated in Denmark for Lighting Associates, 351 E. 61 St., New York 21, N. Y.

On Free Data Card, Circle **102**

Remote Control System Uses Low-Voltage Wiring

"Swepe" remote control system for residential and small commercial construction consists of three basic components: (1) magnetic relay switch which operates a 110/120 volt device using 24-volt current; (2) low voltage switch that operates the relay and indicates whether circuit is on or off; and (3) the transverter, which supplies the low-voltage power to the relays and pilot lights (one transverter supplies a maximum of 60 lighted switches). The switches are notable for their thinness, permitting either flush mounting or surface mounting. Modular design permits any desired number of switches to be mounted in a continuous strip for fingertip control. The components may be flexibly arranged and rearranged to suit changing control needs within the system. Designed by Kenneth Reiner, with Architect John Lautner as Architectural Consultant. Reiner Industries, P.O. Box 27878, Los Feliz Station, Los Angeles 27, Calif.



On Free Data Card, Circle **103**

Saraloy Vent Stack Flashing Is Pre-Cut

Dow Chemical Company's "Saraloy 400" flashing is now being used for pre-cut vent stacks. Tailored to fit four sizes of pipe; 18″ x 18″ sheet has openings for 2½″ and 3″ pipe and 20″ x 20″ sheet has openings for 3½″ and 4″ pipe. Saraloy 400 is waterproof and weather resistant, comformable, fire resistant, and can be painted. Nominal thickness is $\frac{1}{16}$″. Dow Chemical Corp., Midland, Mich.

On Free Data Card, Circle **104**

Hardboard Siding Panel in 16′ Width

Weyerhaeuser has introduced a 16′ hardboard siding panel suitable for apartment houses, motels, and other types of light commercial construction. "Tempered Weytex" hardboard has smooth or striated surface, or "U" grooved surface with 4″, 8″, or random spacing. Prime-coated at factory with light gray, resin-base surface primer. To facilitate application, "U"-grooved panels have a modified shiplap edge that conceals joints and maintains a continuous groove pattern. This edge is stair-stepped to provide a built-in guide stop in butting panels together. Battens or joint treatments are not required. Weyerhaeuser Co., Silvatek Div., Box E, Tacoma, Wash.

On Free Data Card, Circle **105**

UL Approval for Dimmer Systems

A lighting-equipment manufacturer now offers a complete system (utilizing silicon-controlled rectifier dimmers) with the UL label. This exclusive makes available systems that meet local building, fire, and underwriter codes and other requirements. The UL approval has been granted to the "SCR Dimmer" in its 4, 5, and 6 kw capacities. (Other capacities will be available shortly.) Compactness of the dimmers requires less space than comparable units, and self-contained fans in the dimmer rack make it unnecessary to provide for cooling the banks. Installation flexibility permits the dimmers to be located remotely or incorporated as part of the lighting-control console. Kliegl Brothers, 321 W. 50 St., New York 19, N. Y.

On Free Data Card, Circle **106**

Willow Replaces Pine for Stronger Sheathing

New "Temlok" sheathing with substantially greater strength and durability has been announced. The improved characteristics are the result of a change in the manufacturing process to utilize willow fibers rather than loblolly pine. This change to a hardwood-base materials has also significantly improved the sheathing's nail-pull strength and dimensional stability. The new Temlok is made in both 1/2″ and 25/32″ thicknesses, and has a coating of high asphalt content for increased moisture resistance. Armstrong Cork Co., Lancaster, Pa.

On Free Data Card, Circle **107**

Waffle Rubber Carpet Cushion

A sponge rubber carpet cushion, which will not create dust nor lint and will remain moth- and vermin-proof, has

a waffle design that is unconditionally guaranteed to give a luxurious feeling and a longer life to carpets. The General Tire & Rubber Co., Akron 9, Ohio.

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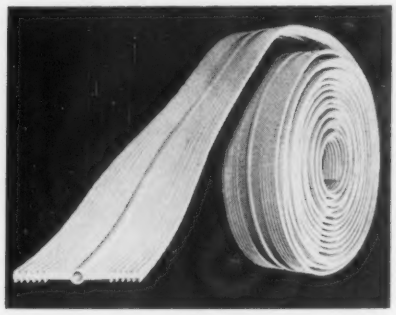

Plastic Waterstop Resists All Corrosion

New plastic waterstop for sealing joints permanently in concrete is reported to be a considerable improvement over waterstops made of rubber or metal. "Ryertex-Omicron PVC" is of ribbed design for high holding power in concrete, and has a hollow center bulb for extra flexibility and elasticity. It will not corrode, provides maximum durability and watertightness, will not harden or crack with age, and is not subject to electrolytic action. It is completely unaffected by chlorine, sewage, or sea water, and also withstands the action of more than 200 other corrosive solutions. Installation is simple; the waterstop may be cut with a hand saw or sharp knife, and may be spliced or butt-welded with heat. The material is supplied in 50′ coils of $\frac{3}{16}$″ thickness, in 4″, 6″, and 8″ widths. Joseph T. Ryerson & Son, Inc., Box 8000-A, Chicago 80, Ill.

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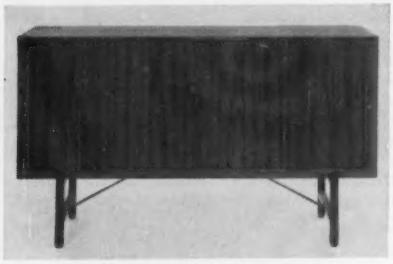


Updated Tambour

Buffet-cabinet contains one shelf and two drawers behind its two sliding doors. The grain of the teak is preserved across the front by utilizing the old tambour technique: doors slide horizontally within the case like the top of a roll-top desk. When closed the doors scarcely show the lines between the teak strips. The buffet, designed by Ejner Larsen and A. Bender Madsen, is 59″ x 17¾″ x 34¾″ high. Furniture Associates, 351 East 61 St., New York 21, N. Y.

On Free Data Card, Circle **110**

With One Surface: Fire/Noise/Heat Control

A one-package answer to the problems of fire, noise, insulation, and decoration has appeared with the uniting of two recently developed materials. The two products, now combined, are "Acoustiplast" (a plaster-like shield against fire, sound, and temperature) and "Qui-ett" (a decorative spray-on sound conditioner). Together, the materials are capable of withstanding 2000 F flame for 4 hours, reducing sound by more than one-half, and insulating against cold and heat in a manner equal to leading insulation materials. The new "Acoustiplast-Qui-ett" has a wide range of finishes, from semi-rough industrial to smart apartment-house decor. It will bond to any type of surface, is simple to mix, and is easily applied with trowel or spray equipment. American Kylon Corp., 777 Busse Highway, Chicago, Ill.

On Free Data Card, Circle **111**

Assured Quality for Vermiculite Deck

Edward R. Murphy, managing director of the Vermiculite Institute of Chicago, announces that member companies are contracting with approved roof-deck applicators to assume responsibility for high quality of vermiculite concrete roof-deck installations, and to install finished vermiculite deck according to Institute specifications. The Institute will issue annual certificates to such applicators, who will be listed in a roster available for the files of professionals, contractors, and built-up roofing companies. Vermiculite Institute, 208 S. LaSalle St., Chicago 4, Ill.

On Free Data Card, Circle **112**

Trim-Lined Window Washing Platform

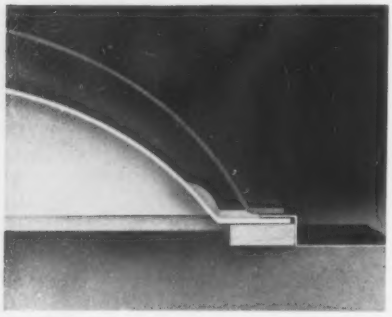
One of the few disadvantages of roof-mounted, window-washing systems in high-rise buildings, namely, bulky appearance, is obviated in "Mayco" system, which has had many installations in West Germany. Mayco consists of a traveling carriage equipped with twin outriggers and a gondola suspended on two cables running over the outriggers to the hoisting mechanism on the carriage. When not in use, the gondola is brought completely over the carriage to disappear behind the roof line. In this way, workers can also safely enter the gondola on the roof. The carriage is of all-welded plate construction and travels on two rails. Special swiveling bogies permit travel through curves of very small radius on building corners. The

gondola is of lightweight alloy and accommodates two men. Movement is controlled by push buttons in the gondola. Mayco, Tubular Structures Corp. of America, 4560 Sperry St., Los Angeles 39, Calif.

On Free Data Card, Circle **113**

Double Dome Stops Heat Loss, Condensation

"The first new development in packaged daylighting in five years" is the self-flashing "Twin Dome." It is a completely sealed, insulated, all-acrylic skylight of low silhouette, to be nailed directly to the roof deck. A 1″ hermetically-sealed, dead-air space between the domes acts as a highly efficient thermal barrier, ending heat loss and eliminating condensation. The Twin Dome is introduced as the first proven unit in which two acrylic domes and an aluminum nailing flange are compatibly bonded by a rigidly tested sealant. Economical and trouble-free installation is assured for any

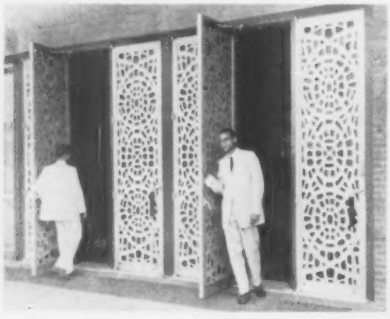


type of roof, any climate. The unit is available in combinations of clear colorless, white translucent, and reflective inner and outer domes, and in sizes from 20″ x 20″ to 64″ x 96″. Wasco Products Dept., American Cyanamid Co., 5 Bay State Rd., Cambridge 38, Mass.

On Free Data Card, Circle **114**

Stained Glass in Aluminum

Stained-glass panels for doors and windows in churches or other institutions have been fashioned using Alcoa aluminum as the framing material.



Aluminum sheets are cut or pierced to execute the design, and pieces of mouthblown glass are sandwiched between layers of the metal. Glass sections are then surrounded by an epoxy resin, allowing parts to expand and contract independently. Use of aluminum spacers makes assembly rigid and structurally stable. Baut Studios, Inc., 1031 Wyoming St., Forty Fort, Pa.

On Free Data Card, Circle **115**

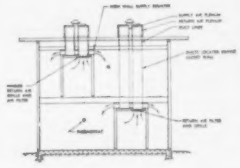
Electronic Controls Match Heat Input, Loss

"Multi-Temp" heavy-duty heating plant features electronic step-controlled input modulation to match heat input to heat loss under all weather conditions. The plant, especially designed for apartment and heavy industrial applications, is composed of individual cast-iron heat exchangers with patented horizontal sections manifolded into common supply and return headers. Separate combustion chambers are sequence-fired by a special Honeywell electronic indoor-outdoor step-control that co-ordinates signals from an electronic outdoor thermostat and an electronic immersion thermostat in the supply water. The step-control commands in and out responses from each combustion chamber.

Input ratings for the system range from 360,000 Btuh to 3,600,000 Btuh.

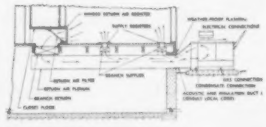
ROOFTOP (flat) INSTALLATION

2-story construction



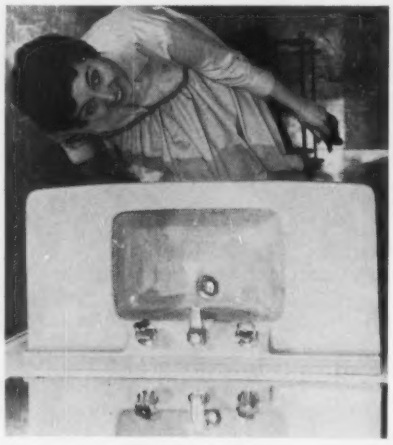
OUTDOOR SLAB

for basement construction



Economies up to 20% are said to result from automatic modulation of gas input to conform to changing load conditions without any impairment of over-all heating plant efficiency. Multi-Temp has its own stand-by protection, making uninterrupted service possible during maintenance. Hydrotherm, Inc., Northvale, N. J.

On Free Data Card, Circle **116**



Large-Size Lavatory

"Valcour" vitreous china lavatory features generous counter space on both sides of large (17″ x 13″) basin. Over-all dimensions are 36″ x 18″. Lavatory, which has, angle mount for fittings, antisplash rim, integral front overflow, and splash back, is available with metal legs or a specially designed cabinet. In pastels or white. Kohler Co., Kohler, Wis.

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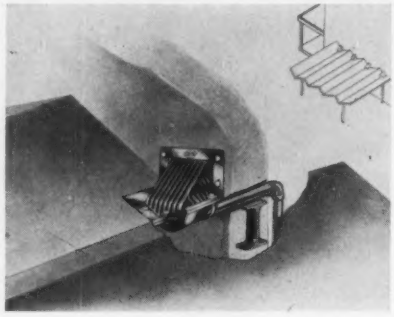
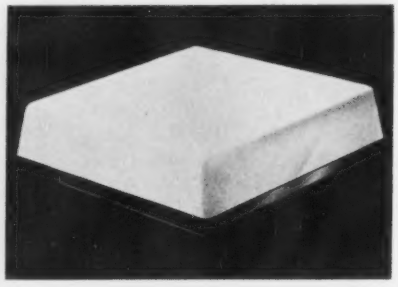


Drain System for Folded-Plate Marquees

New roof drain eliminates need for gutters and exposed drain lines in folded-plate marquees, blending unobtrusively with the design. Large open area ratio of drain assures fast draining of marquee valleys. Construction provides for complete sealing of roofing felts and flashing. "Z-184," as product is known, will accommodate a wide range of slopes, as well as a great variety of insulation and fill depths. Zurn Industries, Inc., Hydromechanics Div., Erie, Pa.

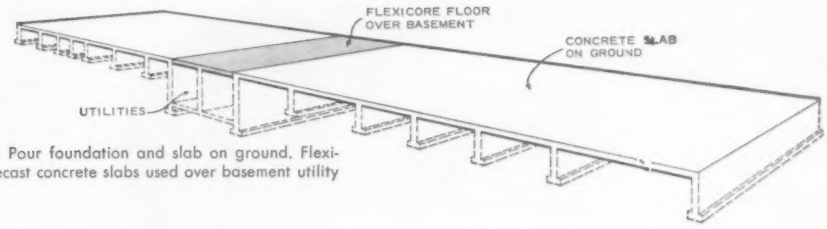
On Free Data Card, Circle **118**



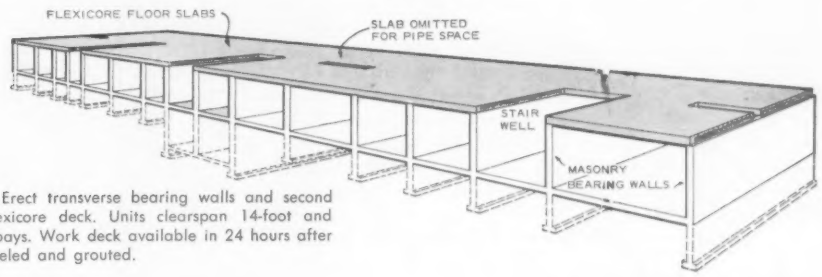
Fiberglass Intake and Relief Ventilator

"Bermuda-AIR Model MC" fiberglass intake and relief ventilator is said to be completely weather resistant, good in applications involving climatic heat, cold, and salt spray. Low profile is a design advantage. Throat openings are from 10″ to 60″, square or rectangular, in 12 colors. Accessories available include bird screens and all types of dampers. Williams-Bermuda Corp., 310 N. Normandie Ave., Los Angeles, Calif.

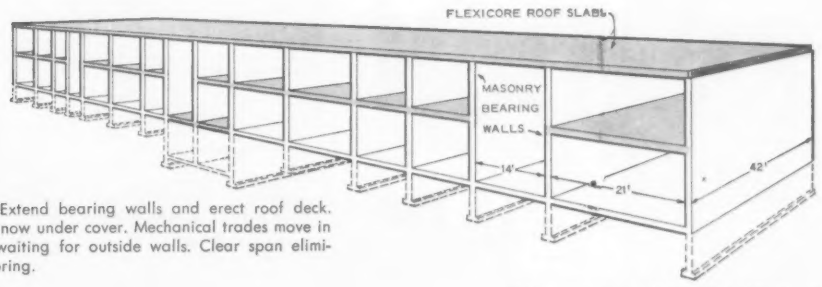
On Free Data Card, Circle **119**



STEP 1. Pour foundation and slab on ground. Flexicore precast concrete slabs used over basement utility rooms.



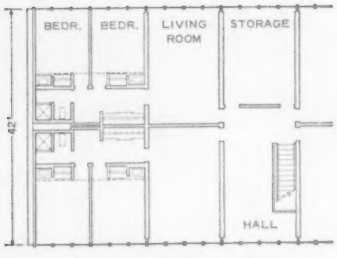
STEP 2. Erect transverse bearing walls and second floor Flexicore deck. Units clearspan 14-foot and 21-foot bays. Work deck available in 24 hours after slabs leveled and grouted.



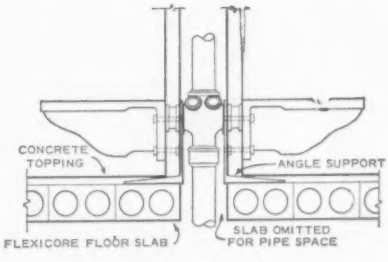
STEP 3. Extend bearing walls and erect roof deck. Building now under cover. Mechanical trades move in without waiting for outside walls. Clear span eliminates shoring.

Skidmore, Owings and Merrill, Architects—Engineers

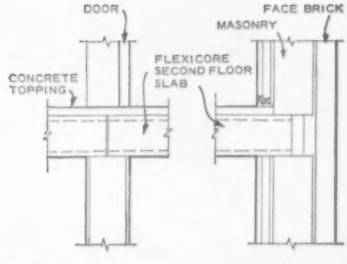
How Air Force Academy Got New Buildings Under Cover Quickly



TYPICAL PLAN SECOND FLOOR



DETAIL—PIPE SHAFT



INTERIOR BEARING WALL END BEARING WALL

The Bachelor Officers' Quarters and Visiting Officers' Quarters at the new Air Force Academy have precast Flexicore floor and roof decks because they provided fast erection, a fireproof structure and a reasonable cost.

For more information on this project, ask for Flexicore Facts 84. Write The Flexicore Co., Inc., Dayton, Ohio, Flexicore Manufacturers Association, 297 S. High St., Columbus 15, Ohio, or look under "Flexicore" in the white pages of your telephone book.

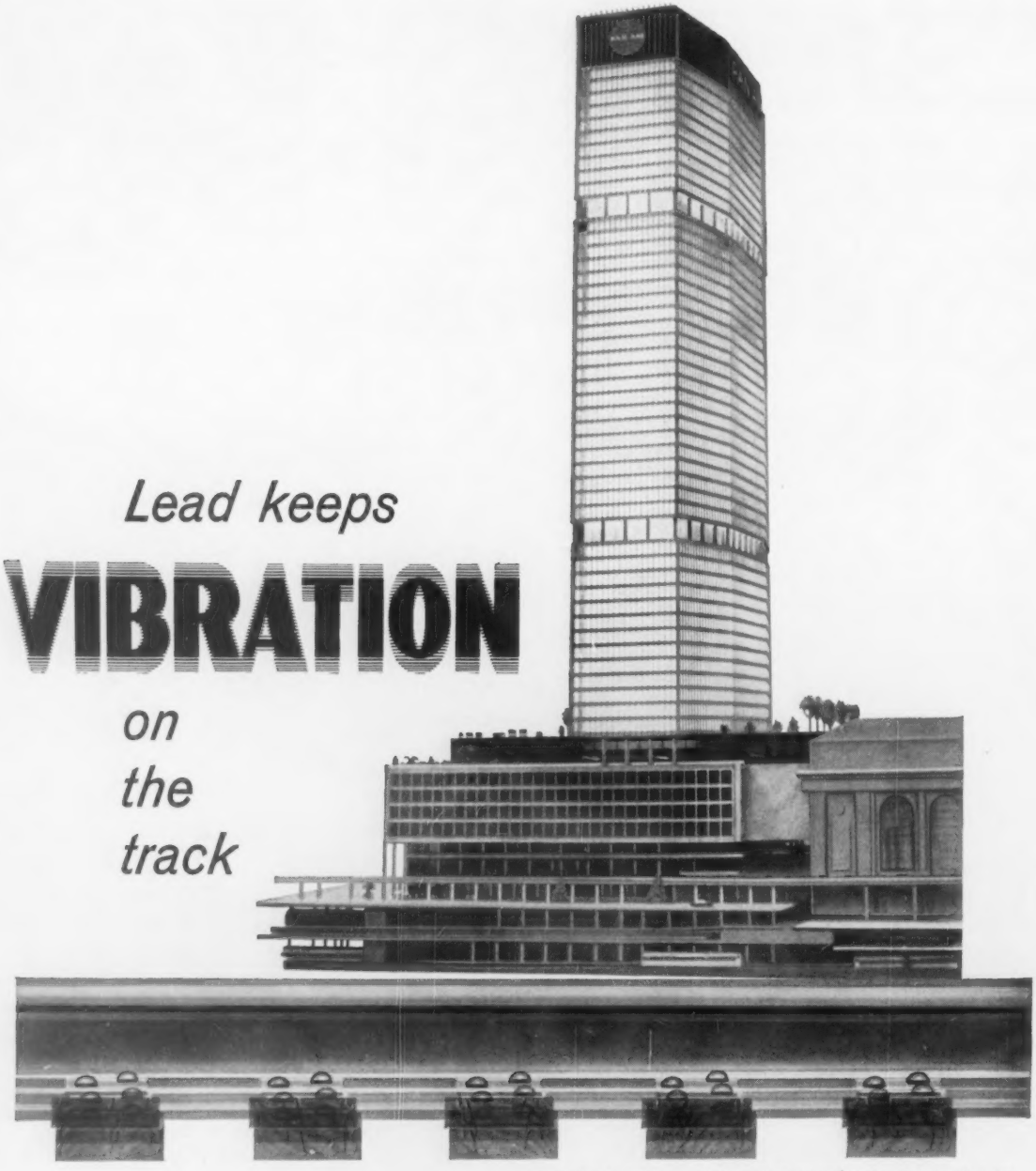
flexicore®
PRECAST CONCRETE DECKS

For more information, turn to Reader Service card, No. 338

Lead keeps

VIBRATION

on the track



Pads for Pan Am Building supplied by John F. Abernethy & Co., Inc., New York City

for Pan Am Building

—Trains rumble endlessly on New York Central tracks beneath the Pan Am Building, now rising in Manhattan —every effort and engineering technique is being exerted to insure that occupants of the largest commercial office building ever built will be comfortably isolated from vibration. Placed beneath each of 238 steel columns supporting the 59 story structure, lead-asbestos pads are installed to muffle the shock and sound.

Similar cushions have already proved their worth at such other outstanding buildings as the Waldorf Astoria Hotel, the Union Carbide Building, the Bell Telephone Company Laboratories in New York, Queen Elizabeth Hotel and the Canadian National Railway Station in Montreal.

Why lead? Because along with its vibration-damping properties, lead seals out moisture, can carry the heavy loads encountered in foundations. And lead's durability assures the pads will last for the building's life.

These properties of lead can serve *you* well in many problems involving vibration suppression or sound attenuation — in architecture or heavy machine design. Write today for detailed information to Lead Industries Association, 292 Madison Ave., New York 17, N. Y.

3977

LOOK AHEAD WITH LEAD

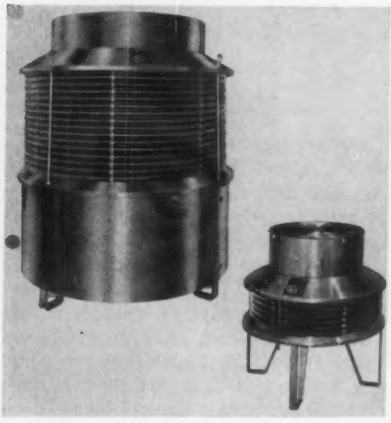
For more information, turn to Reader Service card, circle No. 355

AIR/TEMPERATURE

Schoolroom Units

Climate for Learning, 12 pages, describes five types of unit ventilators for room-wide distribution of heating, ventilating, and even air conditioning. Styled and engineered for the classroom, the units offer many space-saving and cost-saving features in addition to several exclusive operating features. Booklet also shows matching accessories—open and closed shelves, sink and bubbler, cubicle sections—which are designed to blend the installation into a single uninterrupted line. The Trane Co., 2020 Cameron Ave., La Crosse, Wis.

On Free Data Card, Circle **200**



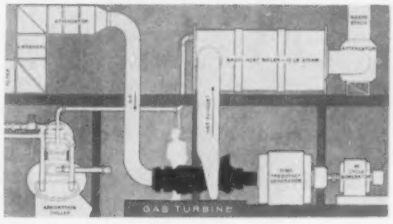
Condensers Cataloged

Latest catalog on "Fandaire" condensers and condensing units gives 76 pages of comprehensive technical data. Loose-leaf catalog opens with a description of exclusive features—among them greater fin-surface efficiency, less power required, and true counterflow. Capacities are sufficient for 3-ton through 120-ton units; larger installations can easily be handled with multiple condensers. All models are shipped in one piece and require no assembly at the job site. Yuba-Aimco Div., Yuba Consolidated Industries, Inc., P.O. Box 9607, Tulsa, Okla.

On Free Data Card, Circle **201**

Air-Conditioned Schools

A New Look at New Schools, 20 pages, reports on recent research analyzing the use of natural gas as fuel in the compact, air-conditioned school. Results of the project show that through application of the gas turbine, a completely air-conditioned school (of compact design) can be built, maintained, and operated for less money than the non-air-conditioned conventional school. Three solutions are illustrated (Solution "A" shown here), with diagrams and cost comparisons. The study was prepared by Golemon & Rolfe, Architects-Engineers of Houston, Texas, under commission by the American Gas Association and the Southern Gas Association. Southern Gas Assn., 1524 Life Bldg., Dallas 2, Texas.



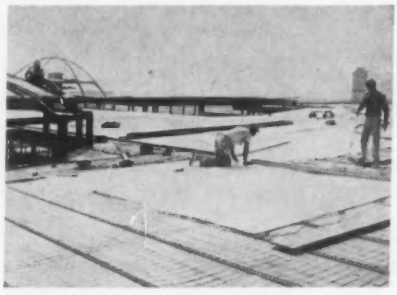
On Free Data Card, Circle **202**

CONSTRUCTION

High-Quality Concrete

Analysis of nine important factors governing high-quality concrete production is given in 6-page *Bulletin P-36C.* Charts diagram the ability of "Pozzolith" to create increased strength, workability, durability, and bond strength; reduced shrinkage and permeability; effective air entrainment; resistance to scaling; and initial retardation. Test data is attractively summarized to illustrate these advantages. The Master Builders Co., 2490 Lee Blvd., Cleveland 18, Ohio.

On Free Data Card, Circle **203**



Seismic Roof Deck

Design folder, 4 pages, on seismic gypsum roof-deck constructions shows tabular data on shear values allowed by the International Conference of Building Officials and by Title 21 of the California Administrative Code. Allowable working stresses and minimum ultimate compressive strength of gypsum concrete are included. Folder also gives detail drawings of poured-gypsum roof deck. Gypsum Assn., 201 N. Wells, Chicago 6, Ill.

On Free Data Card, Circle **204**

Automatic Nailers

Fasteners in lengths from ⅜" to 2", and over 100 guns for driving them, are illustrated in new 16-page catalog. Uses of the various "Spotstaples," T-nails, and "Spotpins" are shown in action photographs. Description of the driving equipment itemizes many advantages: lighter weight, larger load, lower air consumption. Dept. 4200, Spotnails, Inc., 1100 Hicks Rd., Rolling Meadows, Ill.

On Free Data Card, Circle **205**

Expanded Metals

New catalog, 32 pages, illustrates at actual size the full line of "Demcor" expanded metals: "Decromesh" for decorative uses, "Duromesh" for industrial uses, and gratings. In the Decromesh line, 38 patterns are presented. Specifications for each pattern include weight, dimensions, and materials available. Catalog also gives a useful glossary of technical terms and sample specifications. Designers Metal Div., Southern Electric, Inc., 8701 S. Greenwood Ave., Chicago 19, Ill.

On Free Data Card, Circle **206**

Reinforcing Methods in Masonry Walls

New study on wall reinforcing is entitled *Investigation of Continuous Metal Ties as a Replacement for Brick Ties in Masonry Walls.* Prepared for Dur-O-waL by the Armour Research Foundation, the study investigated flexural strength, compressive strength, and water permeability. Results of testing demonstrate that

"continuous wire reinforcement to tie the two wythes of a brick and block wall can replace header bricks without detriment to the structural capability of the wall." Booklet is 44 pages; includes test photos and engineering data. Dur-O-waL Div., Cedar Rapids Block Co., 650 12th Ave., S.W. Cedar Rapids, Iowa.

On Free Data Card, Circle **207**

Guided Tour Through a Cement Plant

The Making of Portland Cement, 20 pages, describes the manufacture of this material, from the original quarrying of raw material to the final grinding and shipping. The story is an interesting one; it is briefly told and is accompanied by sketches of the various processes. Portland Cement Assn., 33 W. Grand Ave., Chicago 10, Ill.

On Free Data Card, Circle **208**

Design Data on New 2.4.1 Plywood

Booklet, 8 pages, supplies detailed design and installation data on 2.4.1 T & G, the new subfloor-underlayment panel that eliminates cross-blocking. This 1⅛" fir-plywood panel, with joints on all four sides, requires supports 4' o.c. and simplifies floor framing and construction in residential building. Finish flooring is applied directly over this one-layer material. Other uses for 2.4.1. T & G include roof sheathing in beamed construction, heavy-duty flooring, computer platforms, and high-strength concrete forms. Douglas Fir Plywood Assn., 1119 A St., Tacoma 2, Wash.

On Free Data Card, Circle **209**

"Grid System" Reinforced Concrete

New brochure, 4 pages, describes "Grid System" of reinforced-concrete construction. This system utilizes Grid domes in 2' modules, to speed building time and save material and labor over comparable-strength flat-slab construction. Brochure gives concise descriptions of the domes, formwork, and utility layout; load tables and typical layouts of ceilings and floors are included. Grid Flat Slab Corp., 761 Dudley St., Boston 25, Mass.

On Free Data Card, Circle **210**

DOORS/WINDOWS

Low-Cost Flush Doors

A new line of 20-gage steel doors and 18-gage frames, complete with hardware and featuring flush-door design, has been announced. Intended for use in light industrial, light commercial, and apartment buildings, "Budgetline" doors are held in stock for immediate shipment. The doors are free of exposed joints on front, back or edges. Catalog includes door, frame and hardware specifications, plus detail drawings and results of slam tests. Budgetline Sales, Aetna Steel Products Corp., 730 Fifth Ave., New York 19, N.Y.

On Free Data Card, Circle **211**

Cold-Storage Doors of Lightweight Plastic

Low-cost plastic refrigeration doors in a choice of five colors are described in new 6-page bulletin. In addition to "Jamolite" hinged walk-in doors, the bulletin includes horizontally sliding walk-in doors, vertically sliding doors for package-passing, and reach-in freezer doors. Weight of the doors is less than half that of conventional metal-clad doors, providing easy handling. Foamed-plastic insulation is available in 4" and 6" thickness. Jamison Cold Storage Door Co., Hagerstown, Md.

On Free Data Card, Circle **212**

Whither the Weather?

New bulletin, 4 pages, describes in detail what materials constitute "Woven Pile" weatherstripping and seals, how it is manufactured, and how it seals silently and effectively. The various impregnations and reinforced backings that are used, according to the specific application of the pile, are discussed. Illustrations show the four broad classifications into which the pile is formed: U-shaped glass-urn channels, flat metal-backed, special metal-backed, and flexible plastic-backed. Schlegel Manufacturing Co., Dept. GB, 1555 Jefferson Rd., Rochester, N.Y.

On Free Data Card, Circle **213**

New Folding Doors

Major new line of interior doors, room dividers, and closet closures is described in 4-page folder. The new line, called "Royale," is explained in terms of its color and fabric beauty, its wide utility as a space-saver and space-creator, and its solid-body resemblance to a paneled wall. Many of these features—including special hardware color-blended to the fabric of each door—are said to be found only in more expensive doors. American Accordion-Fold Doors, Inc., 175-35 Liberty Ave., Jamaica 33, N.Y.

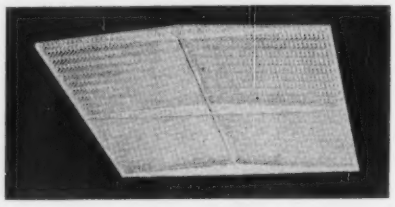
On Free Data Card, Circle **214**

ELECTRICAL EQUIPMENT

Lighting Sports

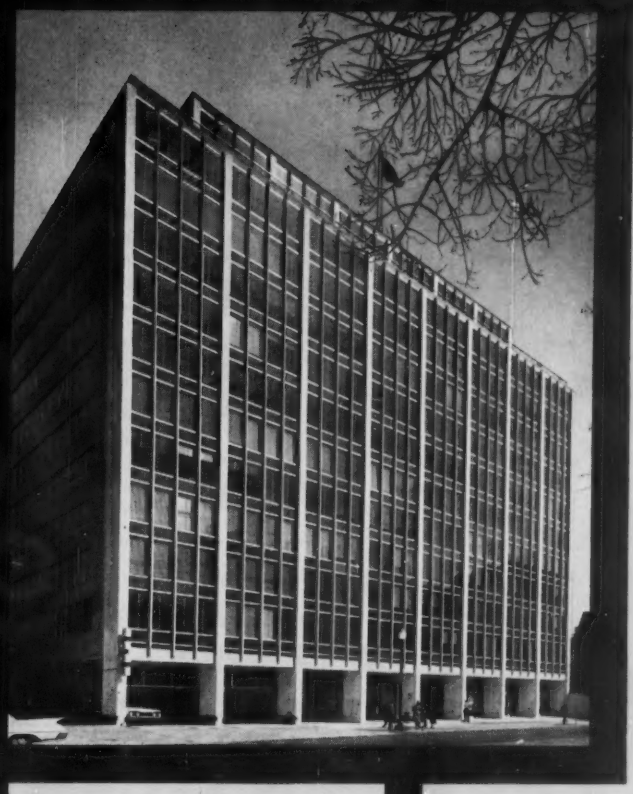
Current Recommended Practice for Sports Lighting, 48 pages, covers lighting for sports that range from professional baseball and football games to recreational and playground activities such as horseshoe pitching and croquet. Introductory chapters discuss the factors of good illumination for these areas. Lighting requirements from the standpoints of players, spectators, and commercial interests follow; then descriptions of lighting equipment and systems to meet these requirements. Recommended layouts of equipment include both indoor and outdoor areas. Write (enclosing 50¢) to: Publication Sales Office, Illuminating Engineering Society, 1860 Broadway, New York 23, N.Y.

On Free Data Card, Circle **215**



Properties of Plastics

Of value to those considering the purchase or specification of lighting fixtures with plastic lenses is a new report entitled *Plastics for Lighting.* The 6-page brochure tabulates 16 physical properties of acrylic, polystyrene, and vinyl plastics that are of importance in luminaire lenses. Notes



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PLASTIC PRISMATIC LENS PANELS PROVIDE CONTROLLED LIGHTING

THE WAKEFIELD PRISMATIC-100

Manufactured by Wakefield Lighting Division, Wakefield Corporation, Vermilion, Ohio.

Libraries, offices, conference rooms . . . each lighting requirement was fully satisfied through the use of K-LITE® plastic prismatic lens panels.

The flat surfaces and extra sharp edges of K-LITE® provide the CONTROLLED lighting area specified for the Penn 17 Building.

In addition, the superior qualities of the K-LITE® series offer:

- **Greater strength than lenses of conventional material**
- **More rigid because of prism pattern over entire panel regardless of size**
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LOOK TO K-S-H FOR NEW PRODUCTS THROUGH "PIONEERED ENGINEERING"

CHECK YOUR CATALOG SUPPLY AND SEND FOR THESE IMPORTANT ENGINEERING HELPS FROM K-S-H . . . KEEP ABREAST OF WHAT'S NEW IN PLASTICS FOR LIGHTING

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Lighting Panel Area Calculator permits fast, accurate determination of square footage necessary for any lighting job.

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For more information, circle No. 349

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LANGUAGE LABORATORY SYSTEMS

PROVIDE AN UNMATCHED COMBINATION OF FEATURES FOR THE ULTIMATE IN LANGUAGE TEACHING AND LEARNING EFFICIENCY

PERFORMANCE—Advanced transistorized circuitry provides high fidelity quality at "tape-saving" speed of 3¾ i.p.s. Matched components assure superior voice fidelity.

FLEXIBILITY—Single teacher can program several levels of language instruction simultaneously. Entire class, groups or individuals can be contacted, monitored or recorded without interruption to other classroom programming. Simplified intercom.

INTERCHANGEABILITY—All components provide plug-in convenience for simplified installation, replacement or inspection.

INSTRUCTOR'S CONSOLE

- Fingertip control of 25 to 50 student positions.
- Five master programs originated from built-in equipment.
- Drawer-housed tape recorders increase desk top working surface.

STUDENT POSITIONS

- Compact, handsomely styled modules feature sturdy construction.
- Compact design permits more positions per row and more positions per classroom.
- Electronic System Panel offers plug-in convenience. All sub panels feature plug-in convenience.
- Basic audio-passive positions can be easily expanded to audio-active or audio-active-compare positions.
- Tape decks feature easier load and student control.
- Multi-position microphone offers new flexibility.
- Fire-resistant acoustical partitions provide greater safety, minimize classroom noise.
- Human engineered controls within easy sight and reach of student operator.

THE DUKANE "MEDALLION" BUILDING-BLOCK SYSTEM CUTS ADD-ON COSTS TO A MINIMUM.

FROM THIS.....TO THIS!

DUKANE engineering has cut the add-on cost barrier. The instructor's console is easily expandable from 25 to 50 positions. Student audio-passive, audio-active and audio-active-compare positions are easily interchanged utilizing existing wiring. Student position modules are available in increments of one and two position styles. These modules can be easily fastened together in odd or even numbered rows according to classroom dimensional requirements.

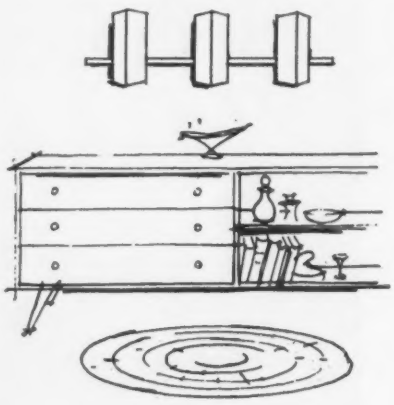
Write for new literature available

DUKANE CORPORATION
DEPT. PA81 ST. CHARLES, ILLINOIS

For more information, turn to Reader Service card, circle No. 330

explain the properties and the various tests. Holophane Co., Inc., 342 Madison Ave., New York 17, N.Y.

On Free Data Card, Circle 216



Fixture Catalog

Full-color catalog has 72 pages of the company's residential and public-area lighting fixtures. More than 250 fixtures are shown, 164 of which are new designs. Style emphasis is described as "elegantly European," although there are numerous Early American and contemporary fixtures. Globe Lighting Products, Inc., 1710 Flushing Ave., Brooklyn 37, N.Y.

On Free Data Card, Circle 217

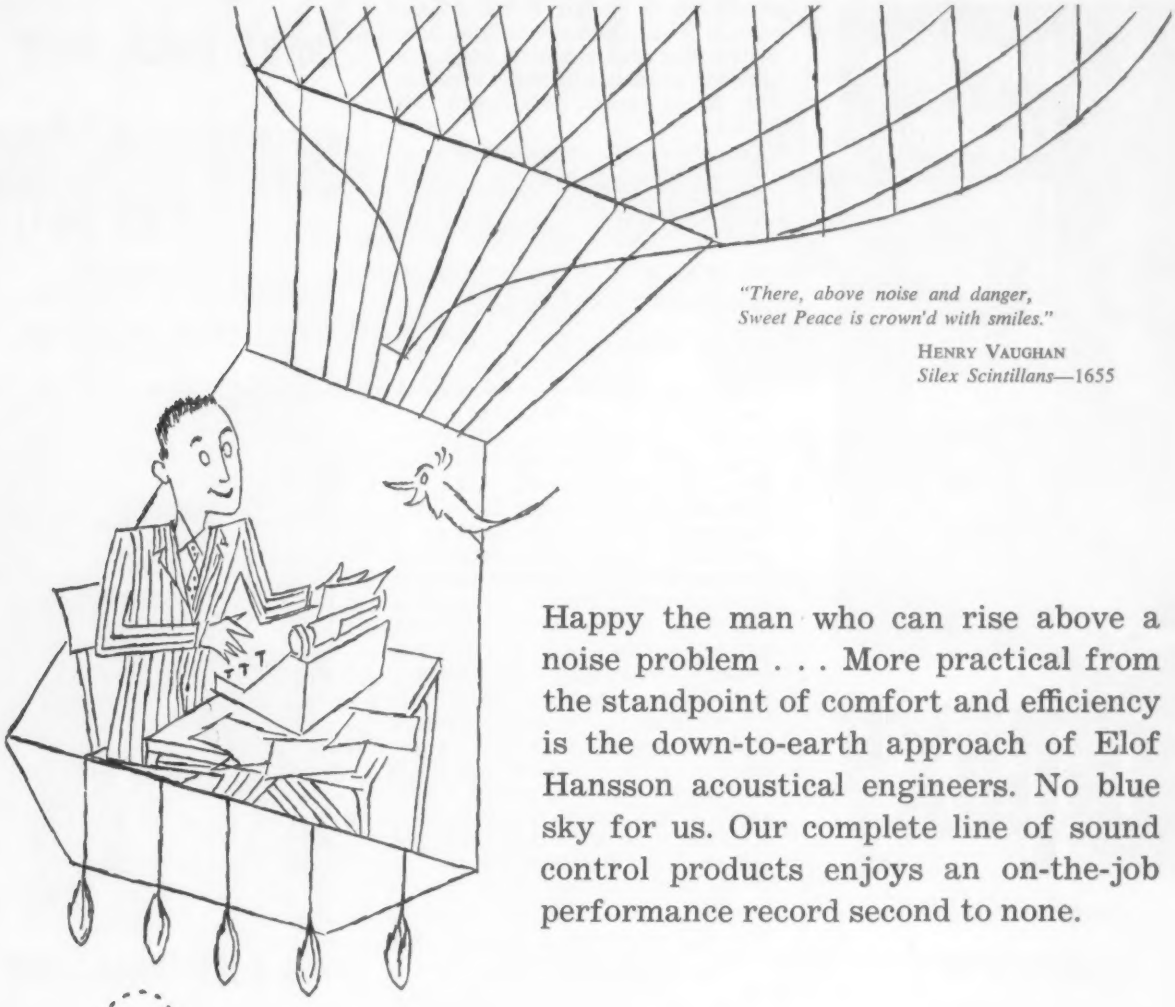
The Day the Power Failed

New 12-page booklet shows what happens in a power-failure "blackout," and how the risks can be avoided. *The Odds on Emergency Lighting* covers the probability and costs involved in power failure, as well as information and specifications on "Light Warden" battery-operated emergency lighting. Typical installation diagrams and approximate costs are included. Electric Cord Co., 432 Plane St., Newark 2, N.J.

On Free Data Card, Circle 218

"Calculite" Selector

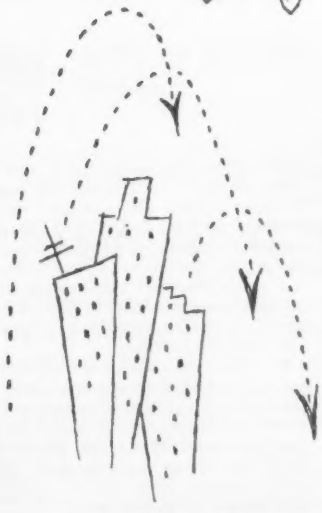
New wheel-shaped *Calculite Selector* is designed to simplify planning while permitting architect or engineer to take advantage of the variety in this broad multipurpose line of recessed fixtures. The line consists of 18 basic models, a total of 96 sizes and finishes, shapes, and capacities. Selector answers such questions as: what particular downlight is best for a specific application; how many are

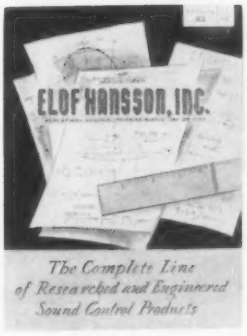


"There, above noise and danger,
Sweet Peace is crown'd with smiles."

HENRY VAUGHAN
Silex Scintillans—1655

Happy the man who can rise above a noise problem . . . More practical from the standpoint of comfort and efficiency is the down-to-earth approach of Elof Hansson acoustical engineers. No blue sky for us. Our complete line of sound control products enjoys an on-the-job performance record second to none.





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It contains illustrations and descriptions of advanced products featuring the latest developments in acoustical engineering, including ratings, specifications and recommended installation methods.

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- The complete diversified line of superior quality sound control products
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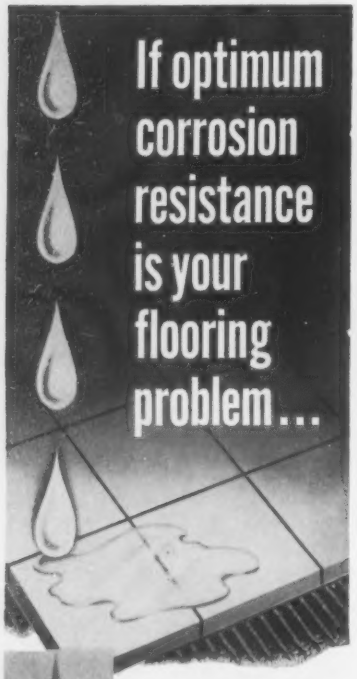
Authorized sales representatives in every major city in the U. S. and Canada

see our catalog in Sweet's (S)

For more information, turn to Reader Service card, circle No. 344



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Revolutionary New Epoxy Grout and Setting Compound Makes Joints as Impervious to Corrosion as the Tile Itself!

Ideal for dairies, packing plants, canneries, bakeries, breweries, distilleries, food processing plants – wherever corrosives are encountered. Forms a dense, tight joint of phenomenal strength. For new installations or re-grouting existing floors. Only water is needed for clean-up. Details in Sweet's or write for a descriptive catalog.

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THE UPCO CO.

4805 Lexington Ave. Cleveland 3, Ohio

For more information, circle No. 395

needed for a specific intensity; and what type of fixture provides the light distribution required for a display, a corridor, or an auditorium. Lightolier, Inc., 346 Claremont Ave., Jersey City 5, N.J.

On Free Data Card, Circle **219**

FINISHERS/PROTECTORS

Textured Coating For Masonry Facades

New "Bostik Architectural Coatings," described in 4-page folder are a polyurethane composition which can be spray-applied simultaneously with a grit aggregate to form a tough, durable exterior or interior finish in a wide range of colors and textures. It provides a durable and weathertight seal for concrete and other masonry, effectively resisting flaking, spalling, and other ravages of the elements. By varying the size of the grit, the resultant texture may be varied from that of fine sandpaper to a rough, pebbly surface. Colors range through brilliant primary hues to soft pastels, and also include a colorless type which is used with natural-colored aggregates. B. B. Chemical Co., Subsidiary of United Shoe Machinery Corp., 784 Memorial Dr., Cambridge, Mass.

On Free Data Card, Circle **220**

INSULATION

Residential Insulation

Comprehensive reference manual entitled *Home Insulations*, 24 pages, is available. For use by the residential architect and home builder, it contains a broad range of design data for insulating air-conditioned and electrically or conventionally heated homes. Published for the first time are the new economic methods of estimating heating and cooling equipment loads

here's quick, easy

snow melting

for asphalt or concrete walks, steps, driveways

with CHROMALOX electric snow-bar

Quick, easy, safe, economical defrosting —that's what new Chromalox Tubular Thermwire Snow-Bar provides satisfied residential and industrial property owners for their sidewalks, steps and driveways. Snow-Bar is the industry's first metal-sheathed sub-surface electric heating unit specifically designed for installation in all asphalt base compounds —as well as concrete.

Economy begins with low original cost, reduced installation cost, no maintenance cost, and operating cost as low as 15¢ an hour for clearing wheel tracks on a 50-foot driveway. **Write for Data Sheet M60103**—learn dozens of profit-making applications, as well as full specifications and buying data.

WM-6

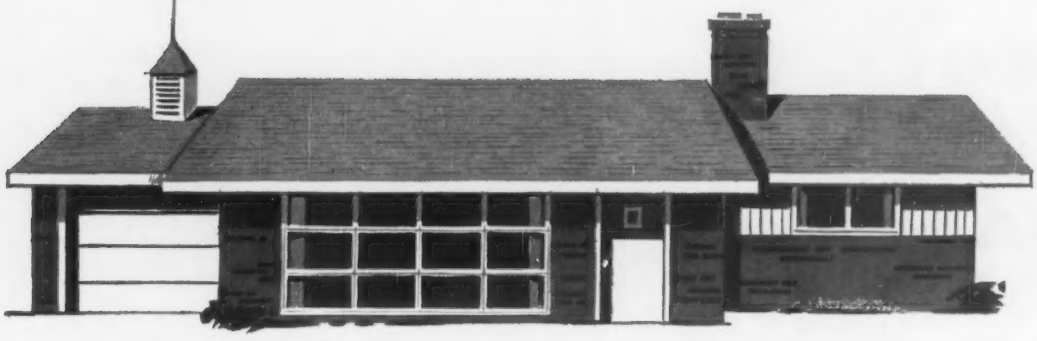
CHROMALOX ELECTRIC HEAT

EDWIN L. WIEGAND COMPANY

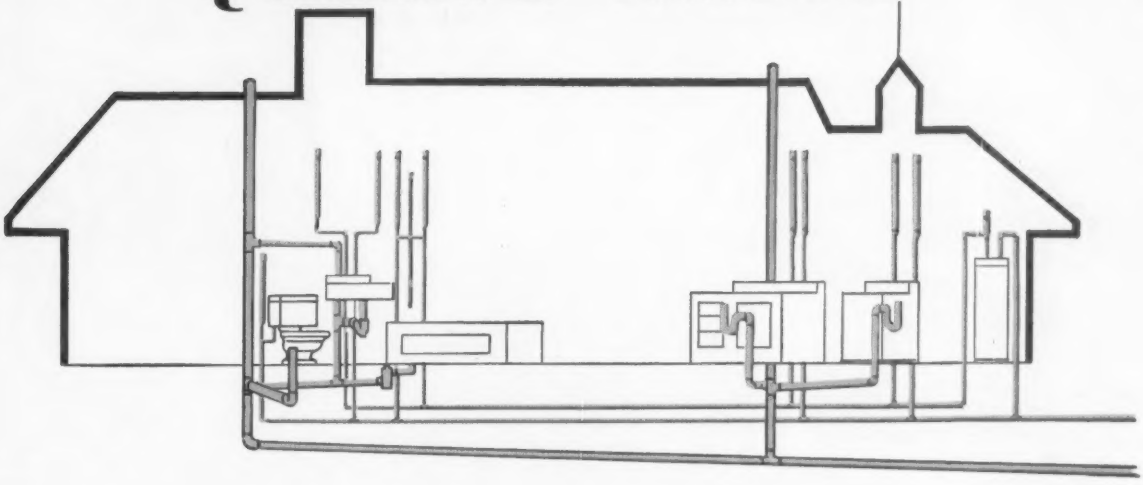
7748 Thomas Boulevard, Pittsburgh, Pa.

For more information, circle No. 385

QUALITY OUTSIDE



QUALITY INSIDE



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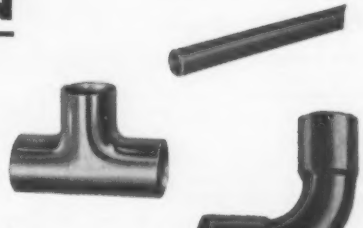
A modern plumbing system, fabricated from Streamline copper tube and fittings, is the mark of quality in any home. Such a system costs no more than one made of rustable materials yet has many outstanding advantages. Plumbing contractors like copper's ease of handling and installing. Builders like the space-saving feature of copper drainage (standard 3" stack fits within a 2" x 4" partition . . . "furring out" is eliminated). Everyone likes the durability of Streamline supply and drainage systems. Copper quality costs no more, so why not specify and install Streamline tube and fittings?



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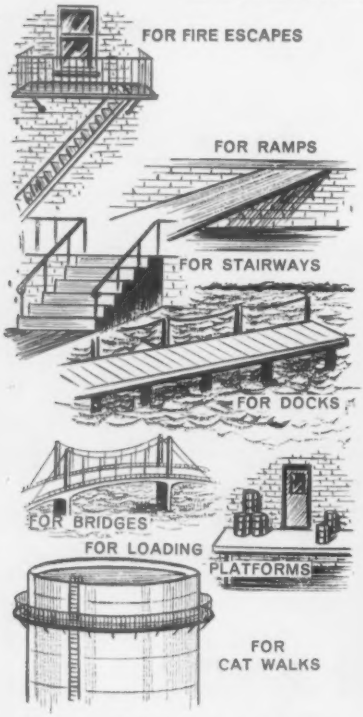
for Wood, Steel, Concrete



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with the simplified "R" system. Also included are recommended installation practices and planning ideas that will cut construction costs. Dept. 1-BL-1230B, Owens-Corning Fiberglas Corp., 717 Fifth Ave., New York, N.Y.

On Free Data Card, Circle 221

Spray-on Insulation

"Asbestolite," new spray-on insulating and acoustical building material, is described in 4-page brochure. Product is a compound of asbestos, bonding agents, and lightweight aggregates designed to be sprayed directly on various surfaces—steel, iron, wood, even glass. The lifetime coating offers significant heat and sound insulation, is easy and economical to apply, prevents condensation, and is fire resistant. The Clute Corp., 1449 W. Littleton Blvd., Littleton, Colo.

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SPECIAL EQUIPMENT

Climbing Platform for Construction, Maintenance

Catalog, 8 pages, presents lightweight "Climber" which is used in a variety of buildings and maintenance operations—painting, weatherproofing, glazing, sandblasting, siding application, steel erection, guniting, window cleaning. Features of the Climber are outlined in several photos that show its construction and safety. Models may be powered either by air or electricity. Also included in catalog is manufacturer's "Roof Railer," which is permanently installed for building maintenance economies. Albina Engine & Machine Works, Inc., 2100 N. Albina Ave., Portland 17, Ore.

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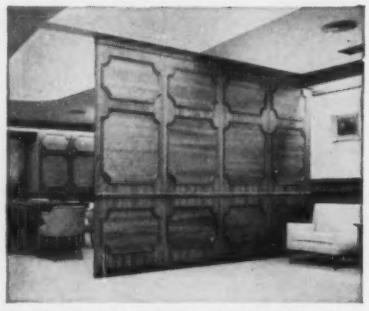

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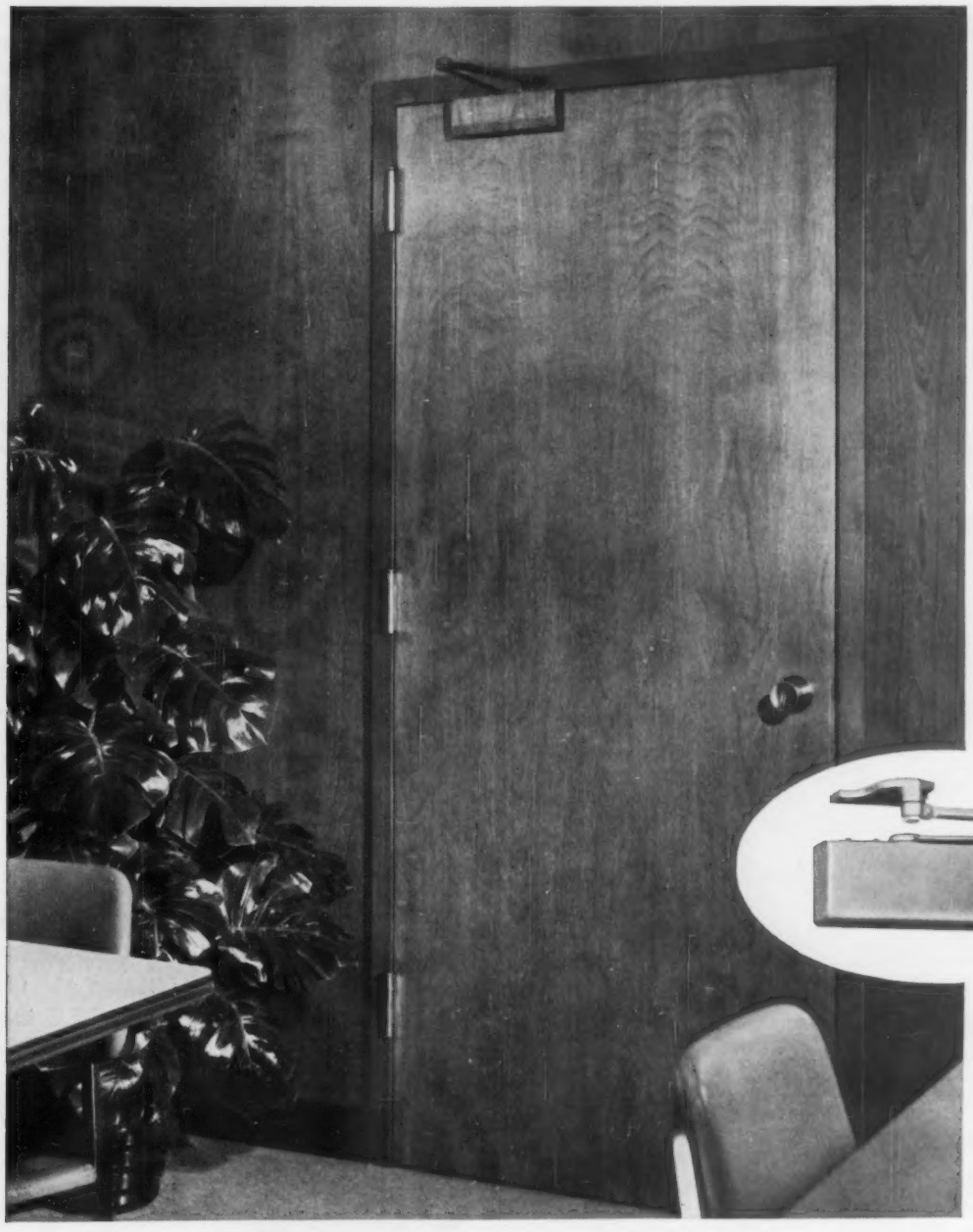

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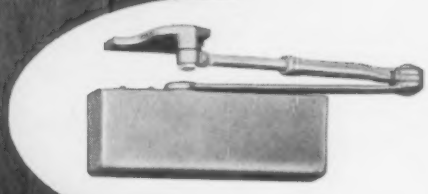

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Pneumatic-Tube Carriers Speed Business Operations

"The quickest distance between two points," says 36-page catalog, is the "Airtube" system. Three basic systems are presented — conventional, semiautomatic, and automatic—with the advantages and method of operation fully described. Typical installations and various adaptations for special problems are shown. All components are illustrated. Lamson Corp., 291 Lamson St., Syracuse 1, N. Y.

On Free Data Card, Circle 224

Significant Breakthrough in Plastic Panels

New catalog, 8 pages, on translucent glass-fiber/nylon reinforced panels, is published. The shatterproof, colorful panels are now also available with exclusive "Filoplated" surfaces, for outstanding durability and long resistance to weather. These panels are guaranteed for the life of the building; their surface appearance, color stability, and light-transmitting properties carry a 15-year guarantee. Additional literature, 10 pages, describes the Filoplate process, shows test results, and gives specifications. Filon Plastics Corp., Architectural Services Dept., 333 N. Van Ness Ave., Hawthorne, Calif.

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Safety Gratings for Industrial Buildings

Safety Handbook and Design Manual of Industrial Safety Gratings and Assemblies, 32 pages, has been published. Booklet opens with the statement that over 13,000 workers were killed on their jobs in the past year, and that a high percentage of these deaths were due to faulty footing. The various patterns of safety grating are illustrated in some of their applications—conveyor ramps, stair treads, catwalks, stair platforms. Bustin Steel Products, Inc., Dover, N. J.

On Free Data Card, Circle 226

Correction

In June P/A, the new sample book and catalog of Darlington Brick was announced in this section as a free sample book. This was an error. These catalogs are offered at a nominal charge by Darlington distributors and by Central Commercial Co., 332 S. Michigan Ave., Chicago 4, Ill.

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NEWS REPORT

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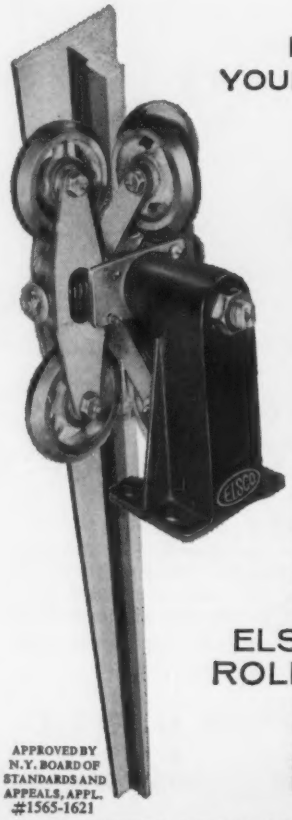

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MAHON CURTAIN WALL

in natural or colored metals

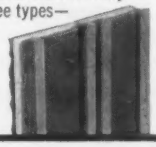
. . . A POWERFUL COMBINATION— LONG-LASTING GOOD LOOKS, SHORT-TIME INSTALLATION

The Moses-Saunders Power Dam near Massena, N. Y.—a vital facility of the St. Lawrence Power Project. The 28-ft. high Curtain Wall is almost a mile long—Mahon's fluted, field-constructed aluminum 3-6-3 section.

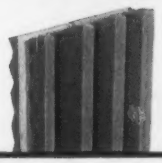
Engineers: Uhl, Hall & Rich, Boston and Hydro-Electric Power Comm. of Ont.

This joint Canadian-American project (for the Power Authority of the State of New York and the Hydro-Electric Power Commission of Ontario) points up how Mahon Metal Curtain Walls offer a practical answer to many architectural, structural . . . and budget problems. Whether your current or future projects are large or small, ground-hugging or cloud-reaching, industrial or commercial—investigate all the advantages of Fiberglas-insulated Mahon Curtain Walls. There's a type to suit your every requirement. Details in new Catalog CW-61. Write for it or ask your local Mahon architectural representative to drop one by.

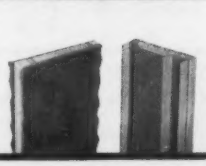
Mahon Curtain Walls are supplied in galvanized, porcelainized, enameled or stainless steel, and aluminum in many finishes, each in three types—



FLUTED
field
constructed



RIBBED
field
constructed



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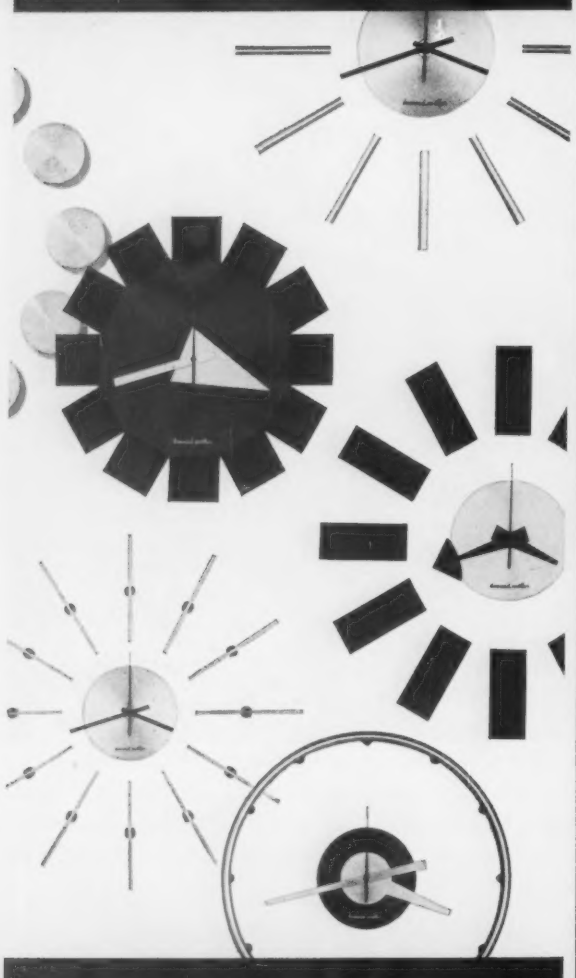

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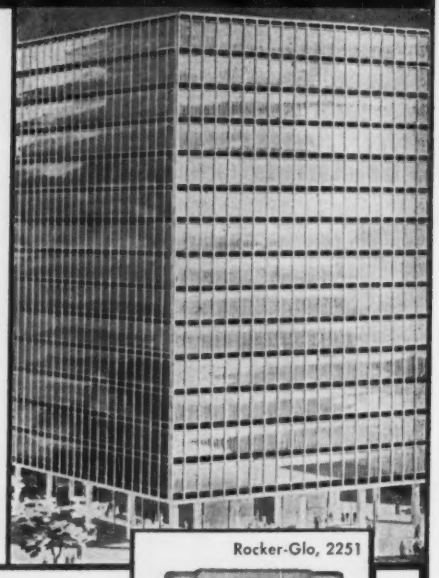

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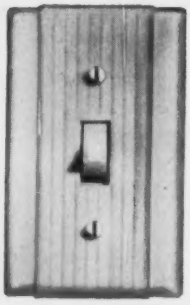

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Answer:
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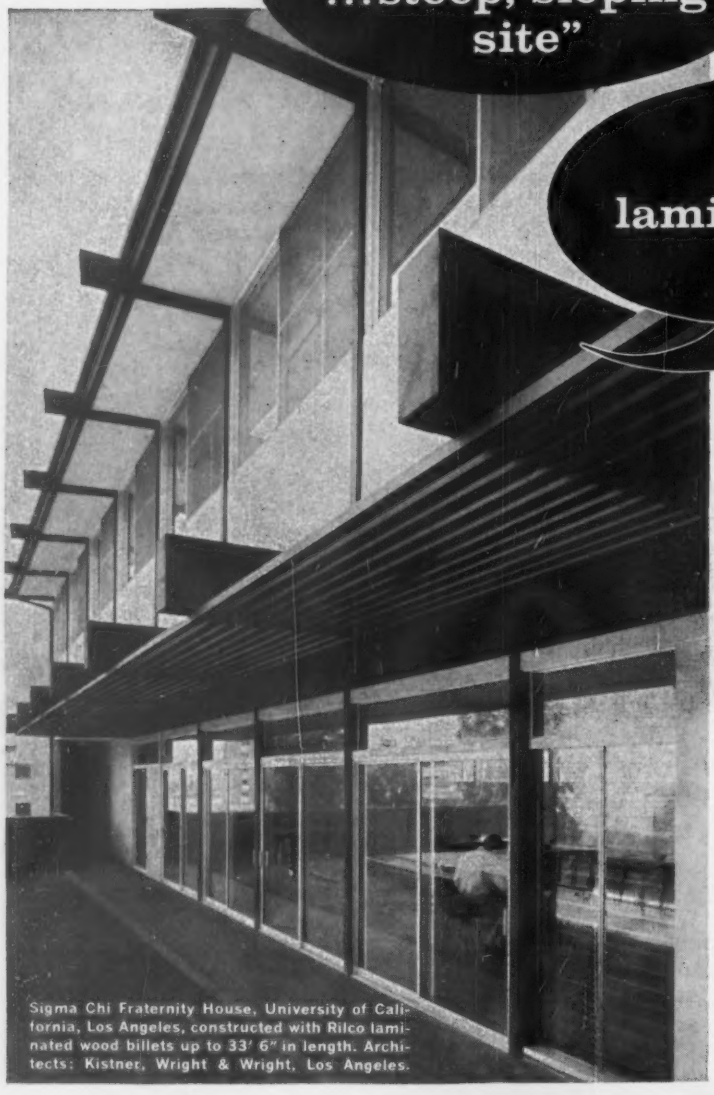

Sigma Chi Fraternity House, University of California, Los Angeles, constructed with Rilco laminated wood billets up to 33' 6" in length. Architects: Kistner, Wright & Wright, Los Angeles.

Two problems challenged the designers of the new Sigma Chi Fraternity House, University of California: "A limited budget and steep, sloping site. One of the basic factors contributing to the success of the project," state the architects, Kistner, Wright & Wright, Los Angeles, "was the use of a simple structural system incorporating laminated wood beams. It offset the relatively high site preparation cost . . . lent itself well to future expansion plans, and allowed finishing on a 'do-it-yourself' basis by fraternity men."

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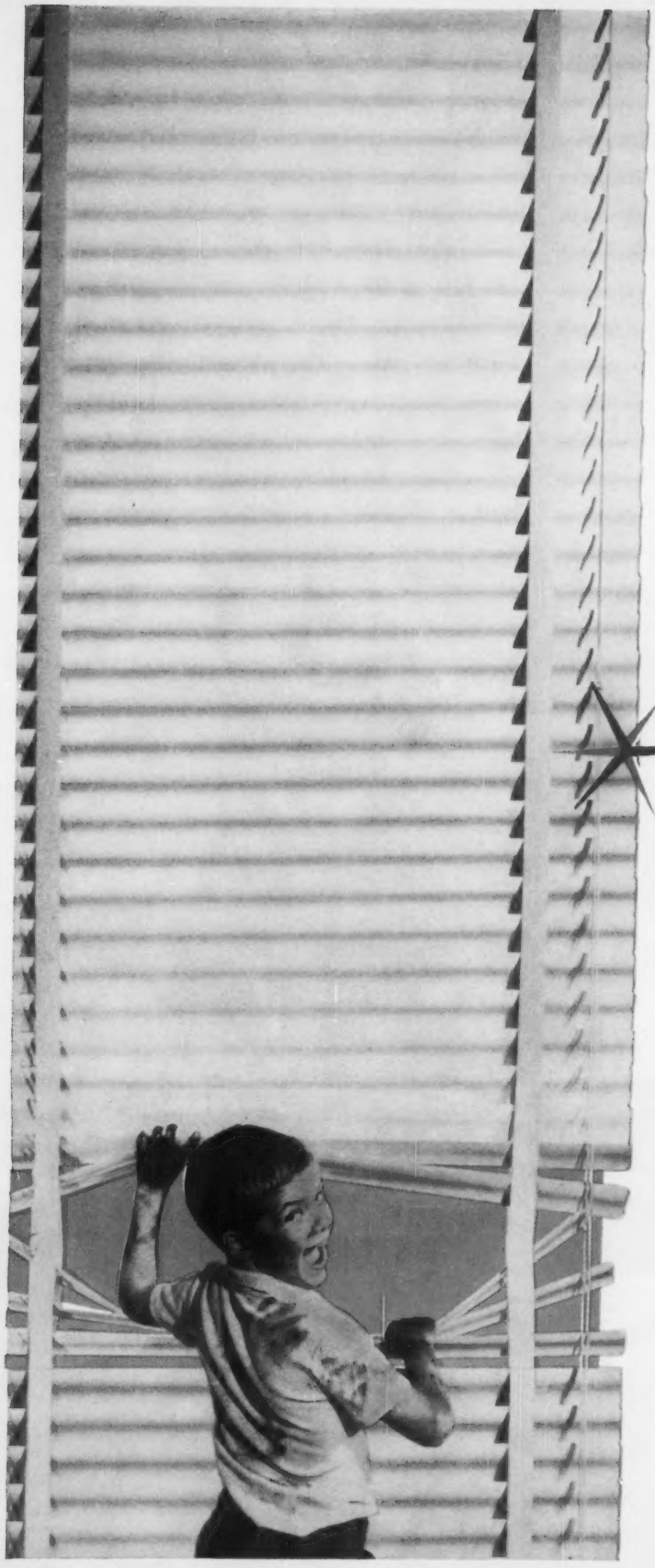

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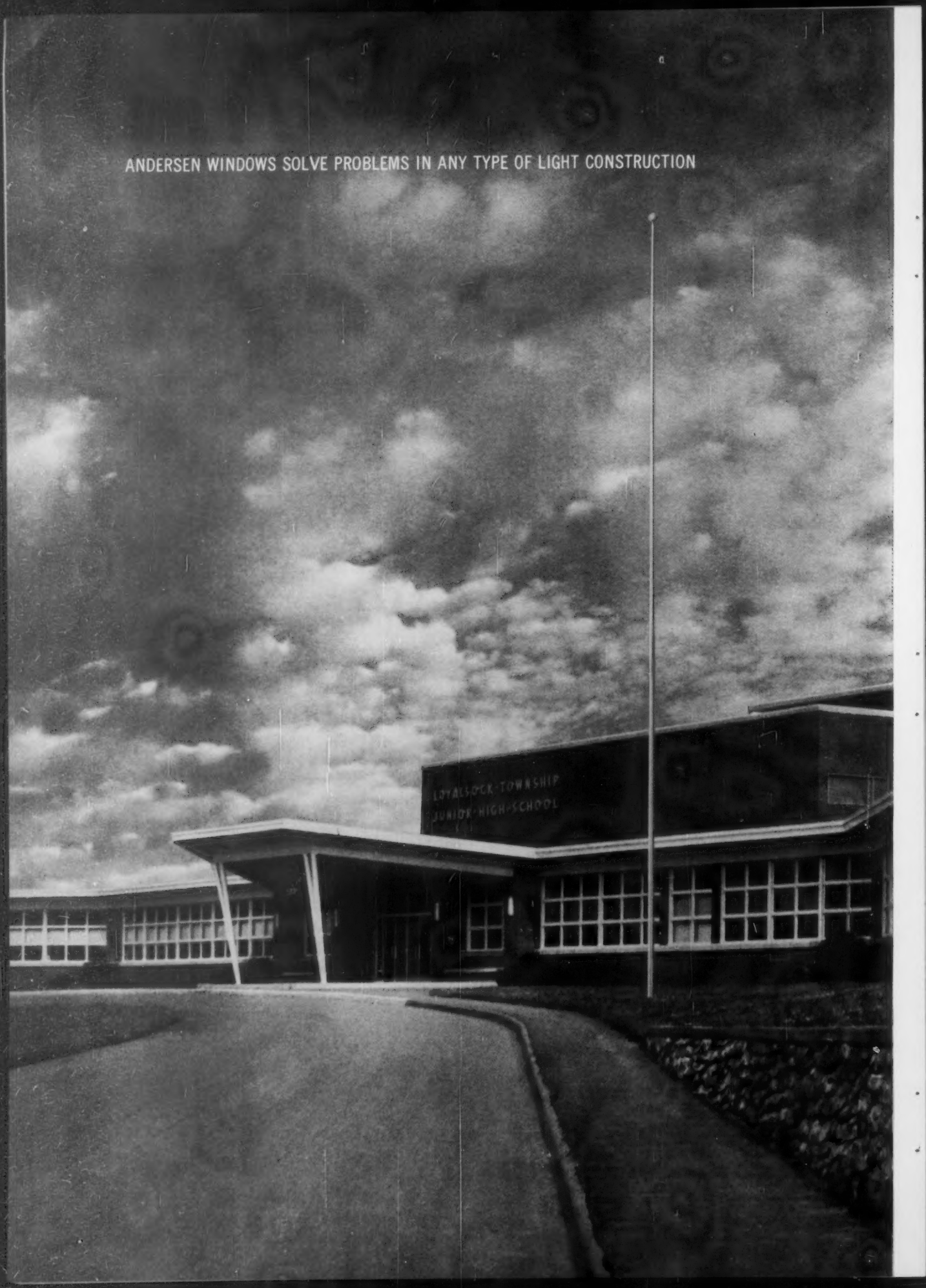

Loyalsock Township Junior High School
Williamsport, Pennsylvania
Architect: John Boodon

Ribbons of windows develop exterior character for this new school

Architect John Boodon specified Andersen Flexivents® for adequate glass area, ease of ventilation, effective insulation

Extensive bands of Andersen Flexivents help Loyalsock Township Junior High School in Williamsport, Pennsylvania function as an efficient, versatile educational plant.

These Flexivents are stacked three high to provide all the natural illumination desired. They open to almost 90°—quickly and easily—to bring in desired ventilation, even in a rain storm.

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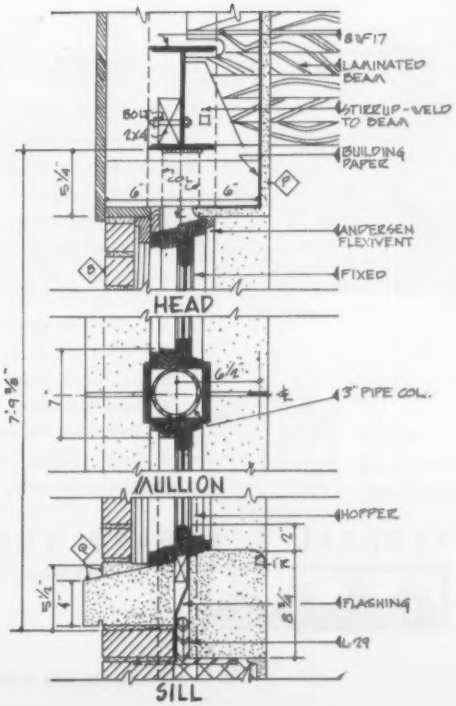

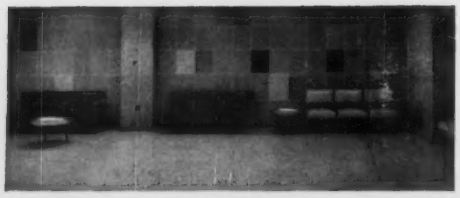

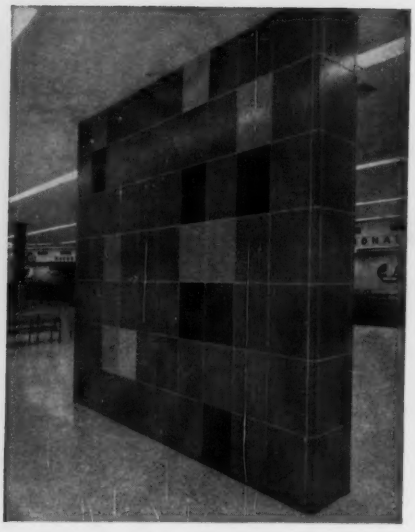

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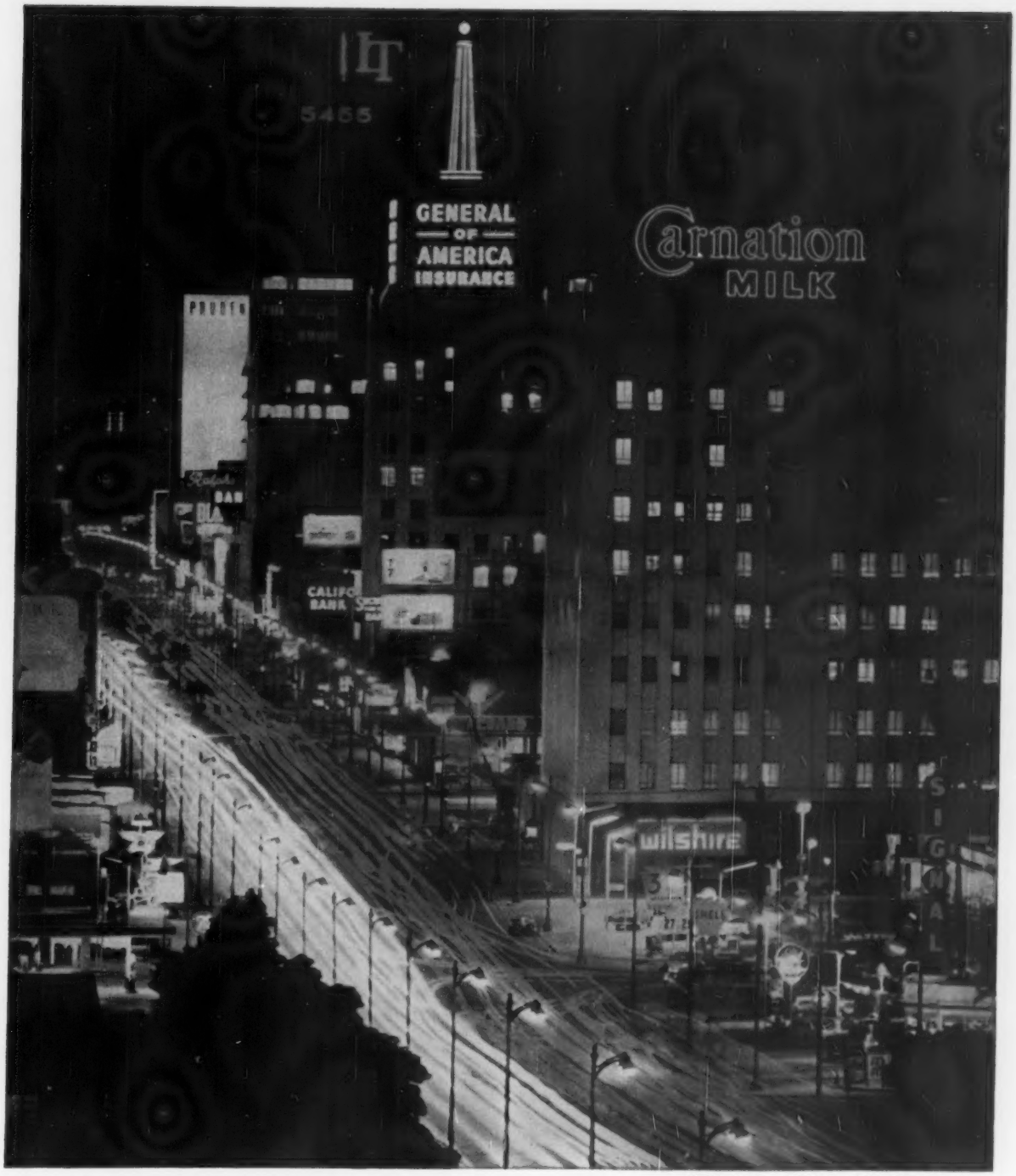

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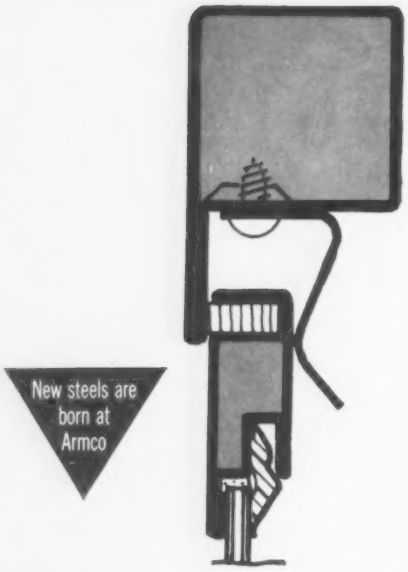

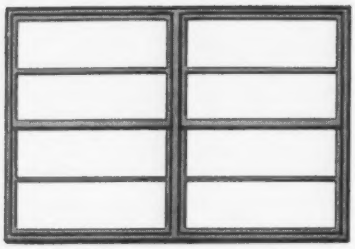

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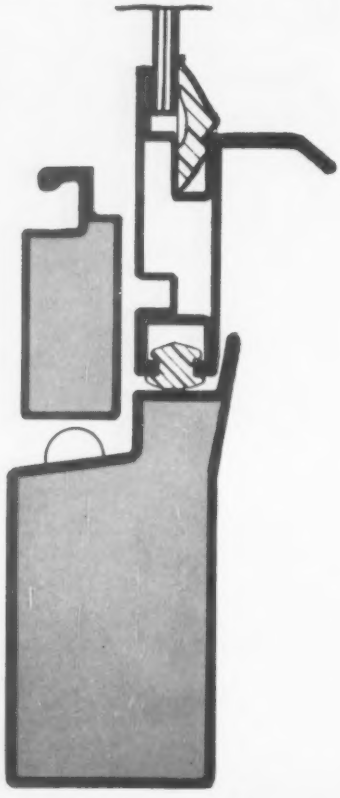

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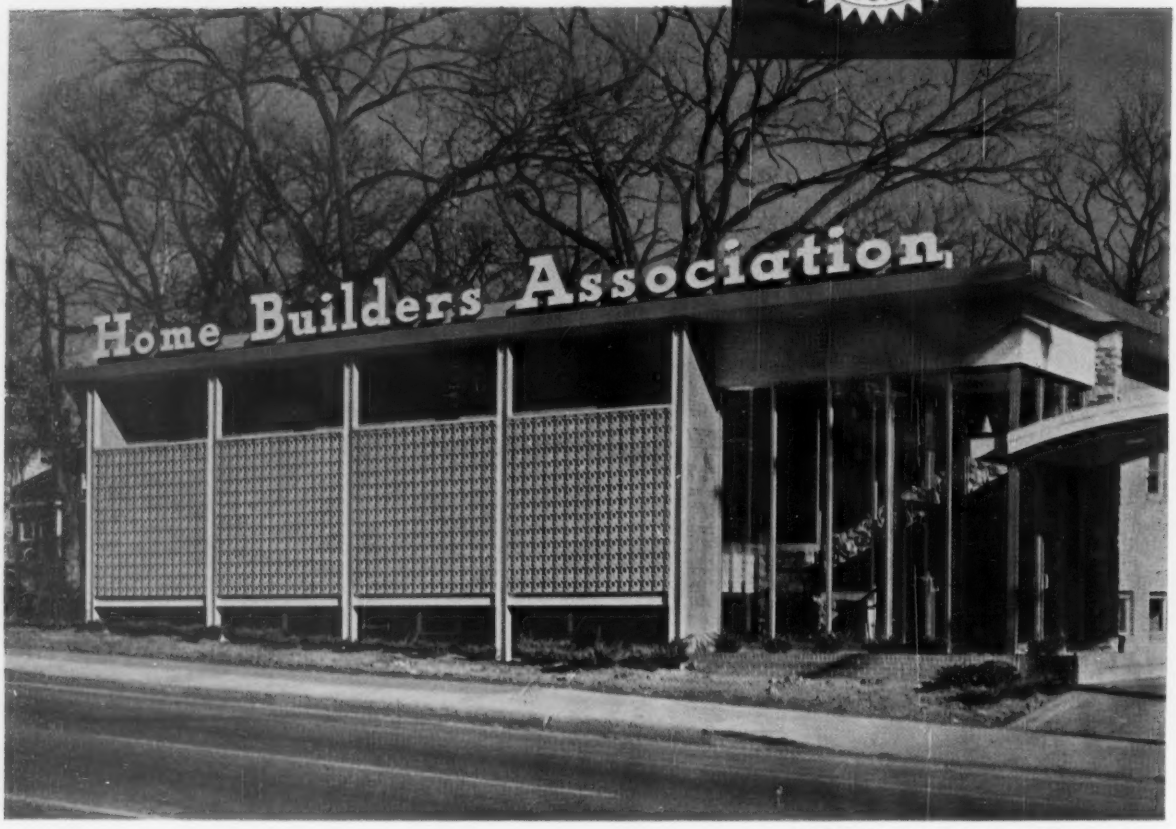

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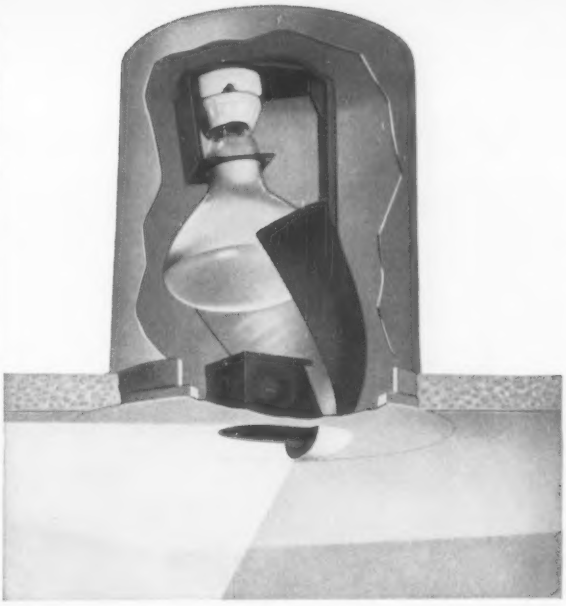

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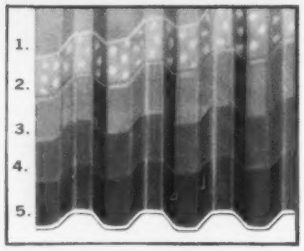

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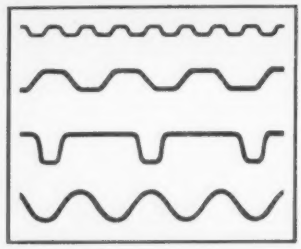

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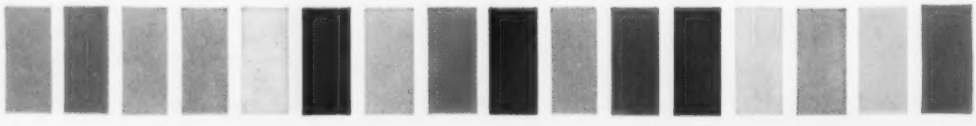

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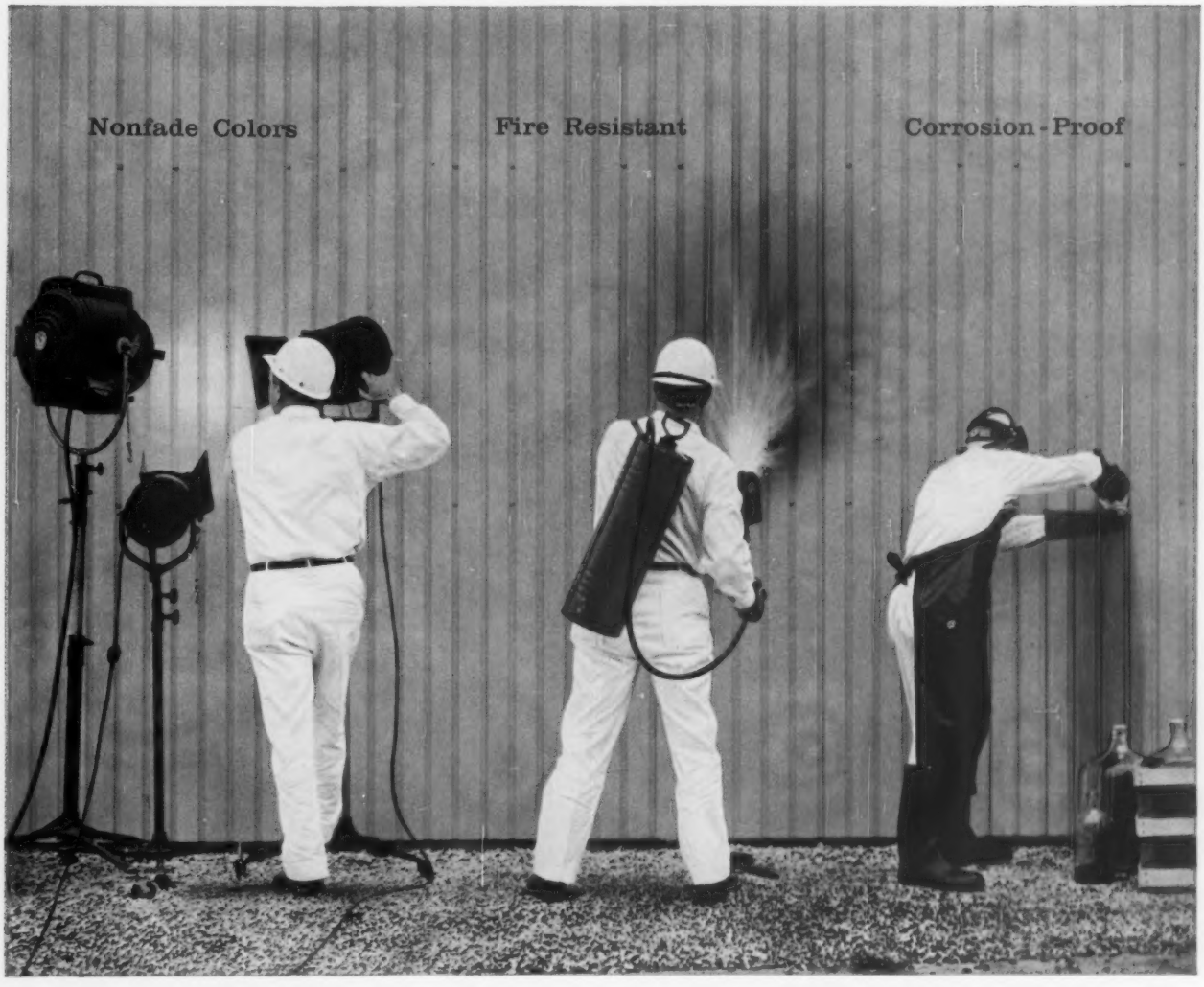

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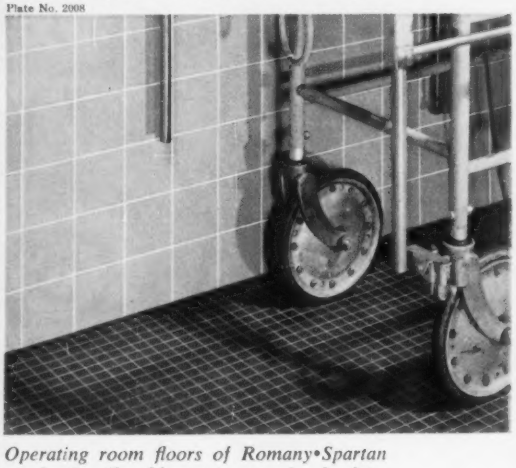

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Photo: Baltazar Korab

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DETROIT'S

Albert Kahn: Ford Highland Park Plant, 1909 (Photo: Courtesy of Albert Kahn Associates)

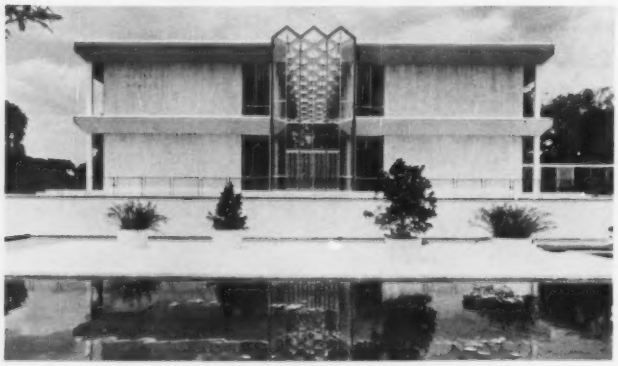
Eliel Saarinen: Cranbrook School, 1925 (Photo: F. S. Lincoln)

THE EMINENT PRECURSORS

Eliel Saarinen: Cranbrook Academy, 1941 (Photo: Hedrich-Blessing)

Eero Saarinen: General Motors Technical Center, 1955 (Photo: Ezra Stoller)

Suren Pilafian: Wayne University, 1955 (Photo: Hedrich-Blessing)



Minoru Yamasaki: Wayne University, 1958 (Photo: Baltazar Korab)

NEW GENERATION

From time to time it becomes tempting to narrow one's view of the total U. S. architectural scene and to concentrate on one area, or one city. There is very little regional variation remaining, for reasons that have been discussed in these pages a number of times, but the more closely focused look at a spot where interesting things are going on sometimes lets us see a sample of the totality in sharper perspective. From time to time it is also interesting to examine the work of the younger men in architecture; one sees reflections of what has gone before, one senses the current influences, and one has a hint of new trends and things that are likely to come.

For those reasons, the following pages will show the work of a group of younger architects in the Detroit area: it is a concentrated view of an important spot seen through the designs — some completed, some still on the boards—of comparatively new firms. Detroit itself, and its closely related suburbs of Birmingham, Bloomfield Hills, and Grosse Pointe, contain *many* new firms. A quick check shows between 40 and 50 architectural offices opened in the last half dozen years (nearly half of which are concentrated in the Birmingham-Bloomfield Hills area).

There seem to be several reasons for this phenomenon. Historically, Detroit has been a city of opportunity (in a business sense, of course, largely due to the automobile industry and its related activities) and of progress. Albert Kahn, a pioneer both in the use of materials and in the study of new-type architectural planning problems, gathered around him a number of younger people in the second and third decades of the century. Some of that work — early direct concrete-framed, steel-windowed factories and plants—remains prominently in the city. In 1922, Eliel Saarinen was called to Bloomfield Hills to head the important school of design, which includes a department of architecture, at Cranbrook Academy. Kahn was partly responsible for this invitation, and although the work of the two was very different, and their attitudes widely at variance (Kahn's factories by then had become stylized versions of the "clean" industrial plant, with its sometimes out-of-context main office entrance; Saarinen at first brought from Finland his more romantic, almost arts-and-crafts, highly personal design), there was a continuity of opportunity and progress, of interest in technology and at the same time in originality, which made Detroit a spawning ground of bright young talent.

Cranbrook itself, as a school, gathered a remarkable group of brilliant teachers, and trained such people as Charles Eames, Alexander Girard, Florence Knoll. Whether or not they stayed in Detroit—some of them did for a while—they, in turn, began to help Detroit build a reputation as a fertile spot for the development of design talent. One of that group of brilliant students was, of course, Eero Saarinen, Eliel's son. Included in the group centering around Cranbrook was J. Robert F. Swanson, who married Eliel's daughter Pipsan, herself a talented designer; and there was formed, for a time, the firm of Saarinen, Swanson, Associates, attracting more bright young talent to the area, and culminating in that greatly influential commission, the General Motors Technical Center.

Intimate observers of the architectural scene noticed an interesting phenomenon as contemporary architecture began to grow in understanding and acceptance after the war: the students graduating from the schools of architecture became choosy about their employment. They did not just look for jobs; they looked for places where they could learn from someone whom they respected. Certain offices became truly training schools; Eero Saarinen's, when he started his own independent firm, was such a one. The bright boys from the graduating classes wanted to work with the man who had won the St. Louis Jefferson Memorial competition with a striking and simple solution (Eero's first strong proof that he was not just Eliel's son) and each of whose subsequent jobs was attracting admiring attention. Later there came to the same area another magnet for young people. Minoru Yamasaki, after a training period in New York and Detroit offices, and a partnership in St. Louis and Detroit (during which he

had attracted attention by such designs as the St. Louis air terminal) began his own practice in Birmingham in the '50s. His office, with its care for design, concern with a rationale, and attention to detail, also became a training school for many younger people.

There are other influences which have brought young architects to Detroit. The school of architecture at the University of Michigan, in nearby Ann Arbor, has through the years graduated many fine architects, with a sense of maturity and a concern with problems of practice and independent operation. Detroit has also for a long time been a center for very big firms, such as Giffels & Rossetti and Smith, Hinchman & Grylls, hiring and releasing numbers of employees and adding to the concentration of younger potential architects in the city and its environs. In addition to the offices of Saarinen and Yamasaki—the two "finishing schools," as one young architect describes them—there are other architects whose work has been of distinguished quality and has often won awards of one sort or another: Swanson Associates, Eberle Smith, Linn Smith, Suren Pilafian, for a time Victor Gruen, and others.

Wayne University has been a third academic magnet: not only has the redesign of its campus by Pilafian, Yamasaki, and others been interesting; it has drawn to its faculty from time to time stimulating people, such as Buford Pickens. The Institute of Arts and the Society of Arts and Crafts have been strong cultural influences. Many artists, of varying abilities, have been attracted to the area. There are a number of local art-sponsoring and art-appreciation groups.

And finally, there has been a large volume of work to do in Detroit, through the prosperous periods. Around the automobile industry has gathered a huge array of suppliers, producers, dealers, law firms, advertising agencies, and so on—all potential clients. There is a great deal of architecture to see in Detroit, and the proportion of outstandingly good things is almost unique among American cities. The General Motors Technical Center has been a *must* on architectural sightseeing tours for some time; now Yamasaki's Reynolds building is included, as is Gruen's Northland Shopping Center. The newest attraction, of course, is the Lafayette-Gratiot high/low apartment group of Mies van der Rohe. There are other buildings that repay a visit, and they still include the elder Saarinen's development of Cranbrook, and some of the Kahn work. Finally, a list of present "influences" should not ignore the very salutary effect of Charles Blessing, Director of the City Planning Commission on recent, current, and projected urban development. The Civic Center on the River, and the carefully thought-out urban renewal which will connect with it, whatever the quality of individual buildings, has been carried through with his persistence, and there is not an architect in the city, of any age, who does not give him credit for intelligent aid and advice.

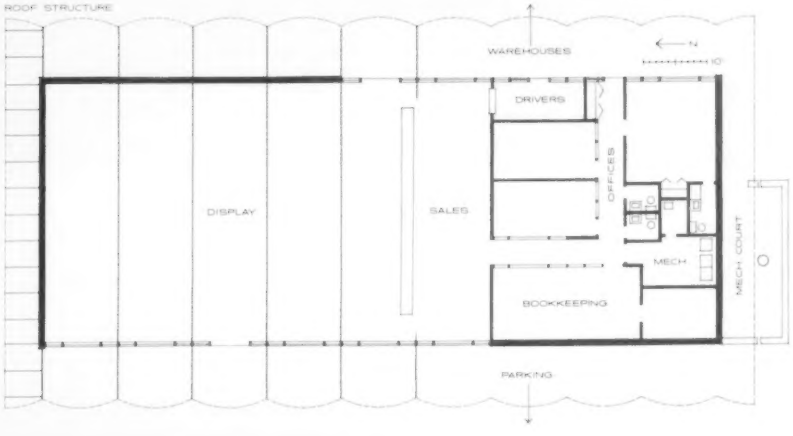
The net result of all these influences, then, is that an unusual number of young architects are functioning in the Detroit area. Some of them are doing very well; others are having difficulties getting started. Some of them are doing outstandingly good work; others, trying equally hard, seem so far to be producing routine design. Competition is tough, and there are some complaints (probably no more than anywhere else) of fee-slicing and other quasi-unethical practices. Among many of the newer firms there is a friendly personal rapport, an interest in one another's progress, a common desire to maintain a high standard of performance. There are, of course, moves into and out of the area, and one senses a sort of restlessness among the group. What effect the projected move of Eero Saarinen's practice to Connecticut this fall will have on the phenomenon we are reporting is problematical. (Although he has done little local work since General Motors, local people feel that there is a sort of "disloyalty" in his leaving.)

What follows, obviously, cannot be a full or a fair report. Certain types of practice are shown; certain firms are emphasized simply because they seem to indicate directions more clearly than others. And some better-known of the younger group, whose work we have previously published or are planning to publish soon in more detail are mentioned here only briefly. This partial documentation of Detroit's new generation seems useful, nevertheless, as one slice of the tissue of U.S. architecture of the '60s that can, so to speak, be put under the microscope. T.H.C.

HAWTHORNE & SCHMIEDEKE

The mean age of the partners, who are 33 and 32, is the lowest of any of the firms represented here—yet six enthusiastic years of successful practice are already behind them. Although the firm has acquired a local reputation for its many bowling centers, the partners have actually completed an equal number of schools, and several religious, commercial, and industrial buildings as well.

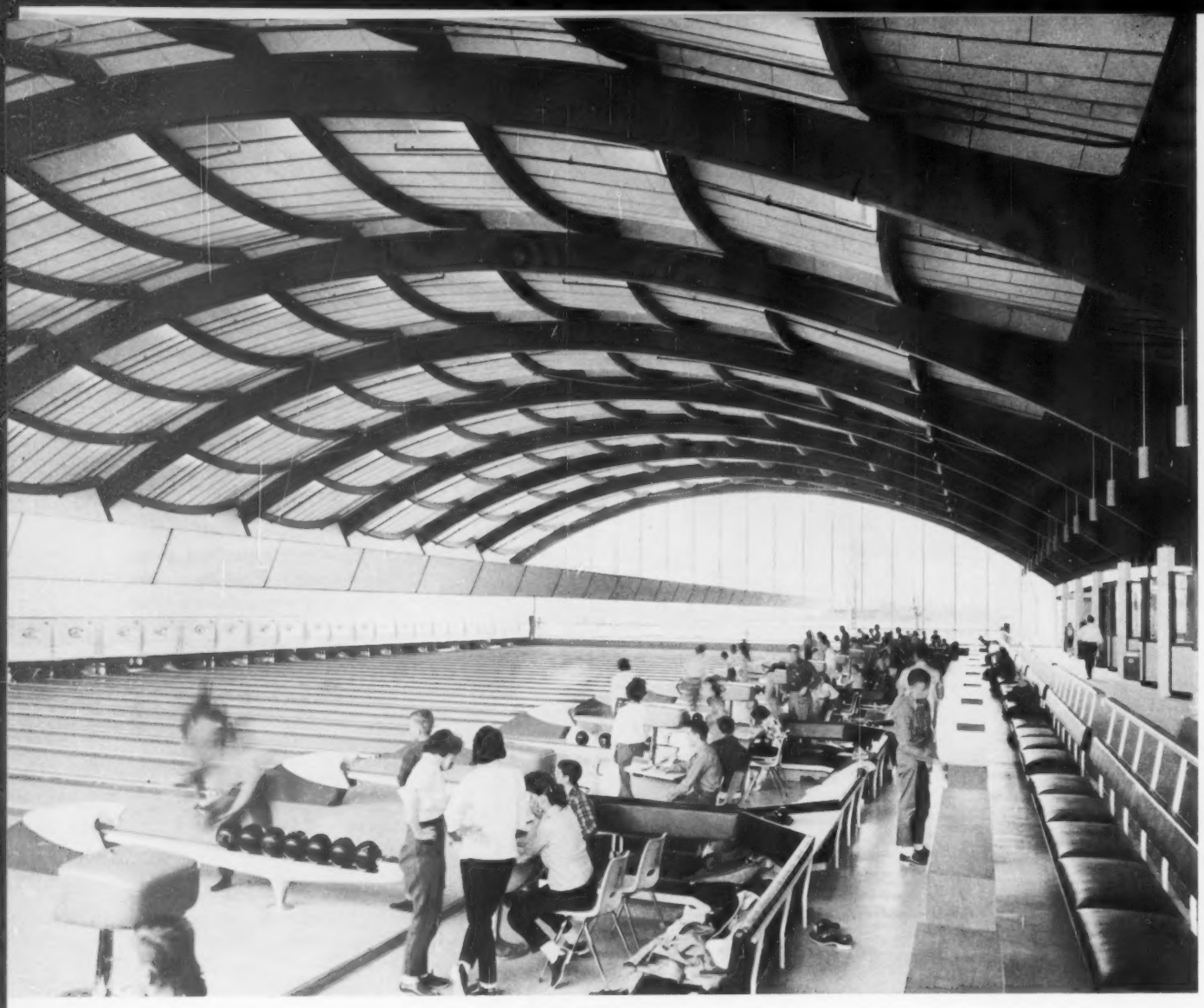
Young firms are not always distinguished for efficiency of office operation, but an outstanding aspect of this practice is the development of a simplified system of contract documents based on modular dimensioning. For each project, the firm prepares a printed brochure, which includes reduced drawings, free of notes and dimensions, along with typed legends, notes, and specifications. As the most promising system of its kind that has yet come to our attention, it will be discussed, along with additional buildings and projects, in a later issue of P/A.

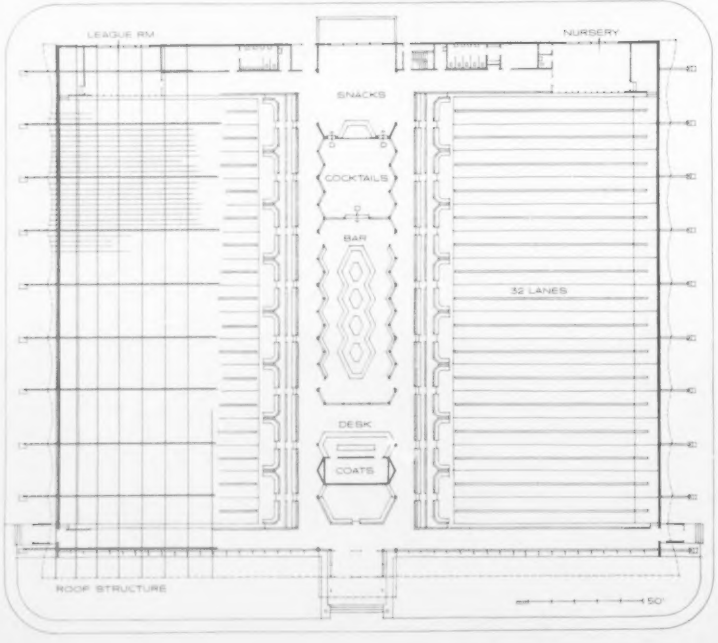


Pine Lumber Sales Building • Redford Township, Michigan • Hawthorne & Schmiedeke, Architects

Under its concave-convex plywood vaults, this building houses the lumber company offices and sales space for the "do-it-yourself" trade. The entire structure, including the wood box girders that support the vaults, was fabricated on the site. Since the owners constructed the building as a do-it-yourself project of their own, they were reluctant at first to undertake such an unconventional structural design. They were encouraged, however, by technical assistance from the Douglas Fir Plywood Association and a Citation in the 1959 P/A Design Awards Program.

Photos on pages 93 through 117, except as noted: Baltazar Korab



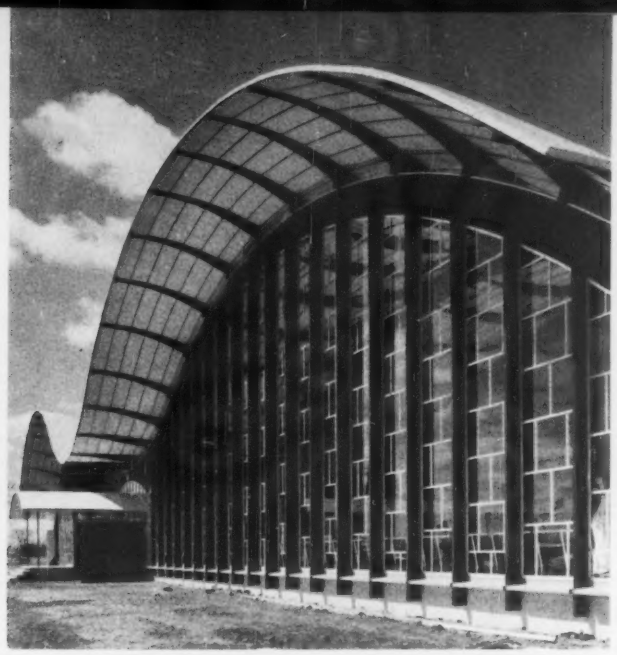


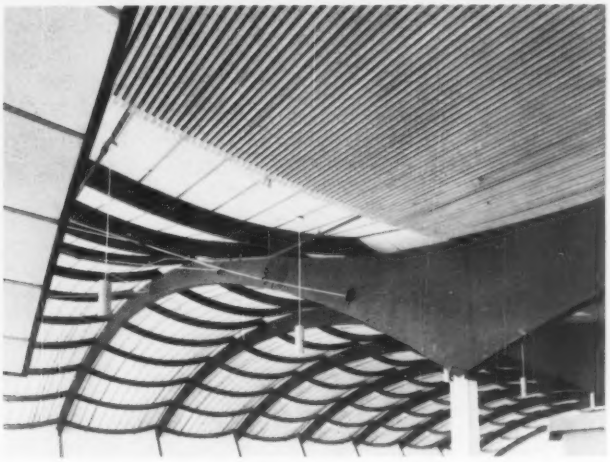
Cloverlanes Bowling Center · Livonia, Michigan · Hawthorne & Schmiedeke, Architects

Each of the several bowling facilities by the firm is individual in design, but all are striking in profile and all are imaginative responses to the problems of spanning vast areas economically. At Cloverlanes, the most recent one to be opened, the 64 lanes have been laid out in two banks of 32 each in order to shorten internal circulation routes. Auxiliary facilities are located along the central axis.

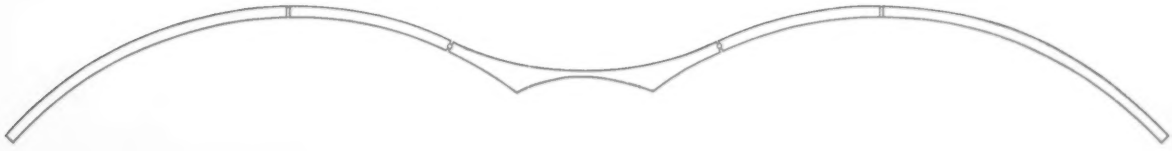
The client requested that the building be visually open on the interior and that the bowling activity be visible from the outside. The slightly elevated bar and cocktail lounge are glass-enclosed, with panoramic views of the lanes.

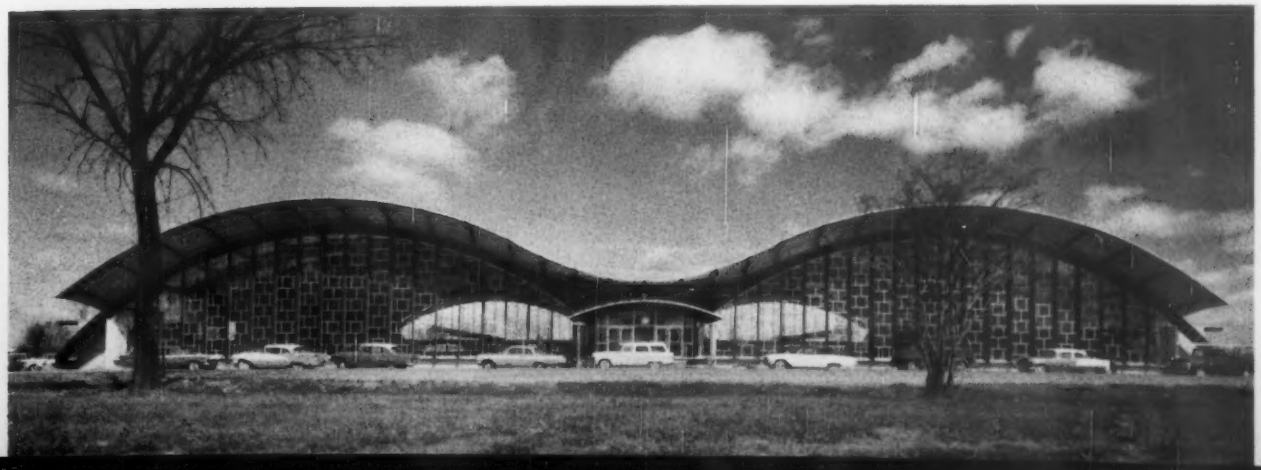
The total cost, including interior furnishings designed by the architects, but not including bowling equipment, was $600,000, or about $9.68 per sq ft.



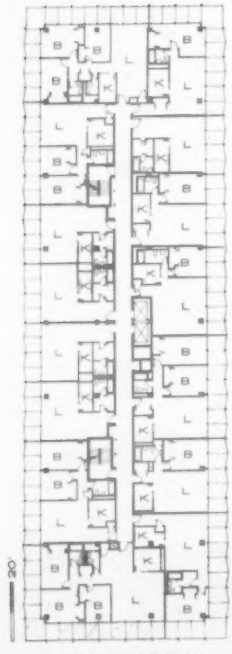


The roof structure consists of laminated timber arches supported on the interior by two rows of concrete-encased wood columns. The wood-fiber roof deck panels are supported on curved, laminated purlins that are flattened near the center of the building to permit drainage.





Photos this page: Lens Art



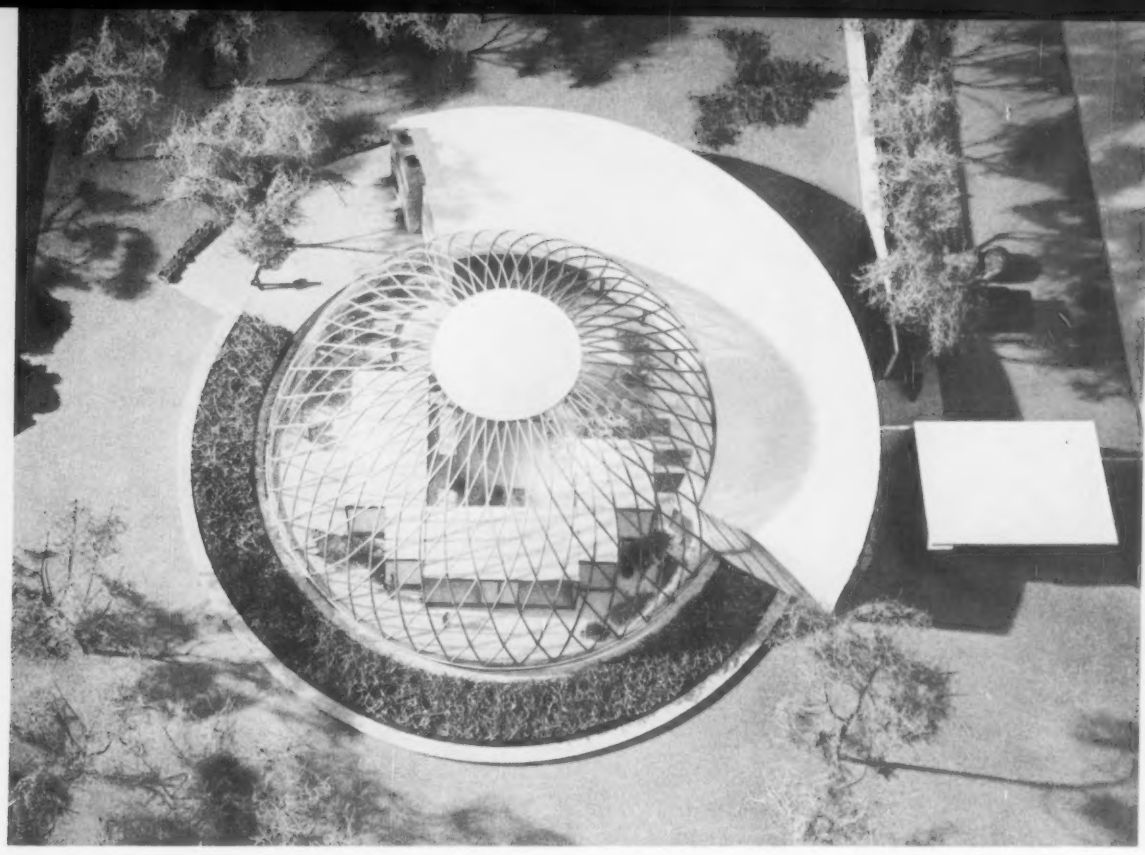
TYPICAL FLOOR PLAN

KING & LEWIS

Both of the partners of this firm, established in Detroit in 1955, have had experience in the Albert Kahn office, where King's brother is now a partner. King himself is a thoughtful, ambitious man of 36, presiding over a busy office; commercial, apartment house, and church work predominate at the moment. The work is not a display of unbridled imagination, but is, rather, the product of careful study of structural possibilities and attention to detail.

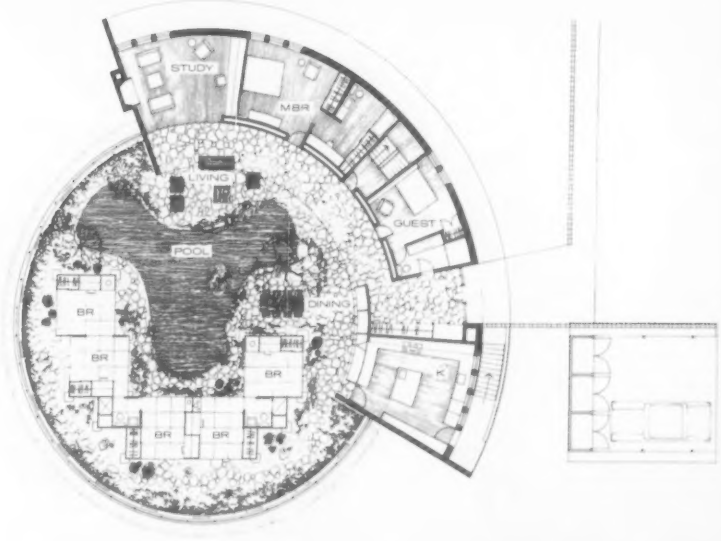
Huron Towers Apartments · Ann Arbor, Michigan · King & Lewis, Architects

The twin 12-story towers, containing 360 units, were designed for a seven-acre site that drops sharply to the south toward the Huron River. The two towers are joined by a playful entrance canopy crossing a paved terrace that extends to the south as the roof of a three-level parking garage, each level of which is accessible at grade. Continuous cantilevered balconies around each apartment floor will allow the tenants the maximum enjoyment of the views of the river, the nearby campus, and an adjacent municipal golf course. The structure will consist of 9-in. concrete slabs supported on steel columns, utilizing the Youtz-Slick lift-slab system.



GLEN PAULSEN & ASSOCIATES

One of the most recent "graduates" of the Saarinen office, Paulsen established his own firm in 1958 in Bloomfield Hills. Aside from six years with Saarinen, his experience includes a term as architectural coordinator for the Knoll International planning unit. He has also been an associate professor at the University of Michigan. One of his current projects is the addition of a parish hall to the Lutheran Church that the Saarinens designed in 1949 for Minneapolis.



Residence • Grosse Ile, Michigan • Glen Paulsen & Associates, Architects

Although the transparent domed structure is no longer a novelty, this house may be the first economical application of it as a year-round, controlled residential environment. The design was developed in collaboration with the originator of the structural system, V. S. deBeausset, to meet the needs of his family. The main living area is beside the swimming pool, under the dome. Within this area is a demountable structure, with an aluminum frame and plasticized paper sliding panels, housing five bedrooms for the children. Sun control will be achieved by use of an experimental material that will screen out infrared rays without reducing visibility.

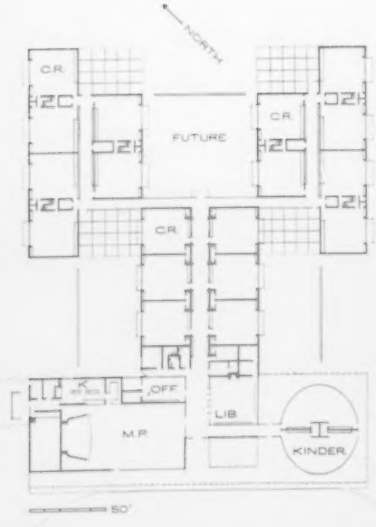
Photos this page: Lens Art

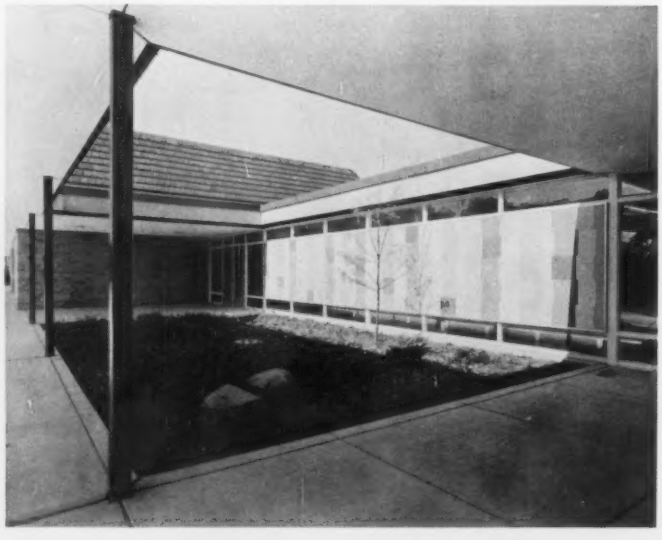
TARAPATA MacMAHON ASSOCIATES

The firm's current work includes a number of new approaches to school design. The two principals, both in their early forties, were associated in the firm of Smith, Tarapata & MacMahon from 1956 to 1959, when they set up their present office in Bloomfield Hills. Tarapata, who is in charge of design, has specialized in school design ever since receiving his Master's in Architecture from the University of Michigan in 1947. He served his apprenticeship in the Eberle Smith office, where he was an associate for seven years, and has been a visiting lecturer at Wayne University School of Education.

James B. Conant Elementary School • Bloomfield Township, Michigan • Tarapata-MacMahon Associates, Architects

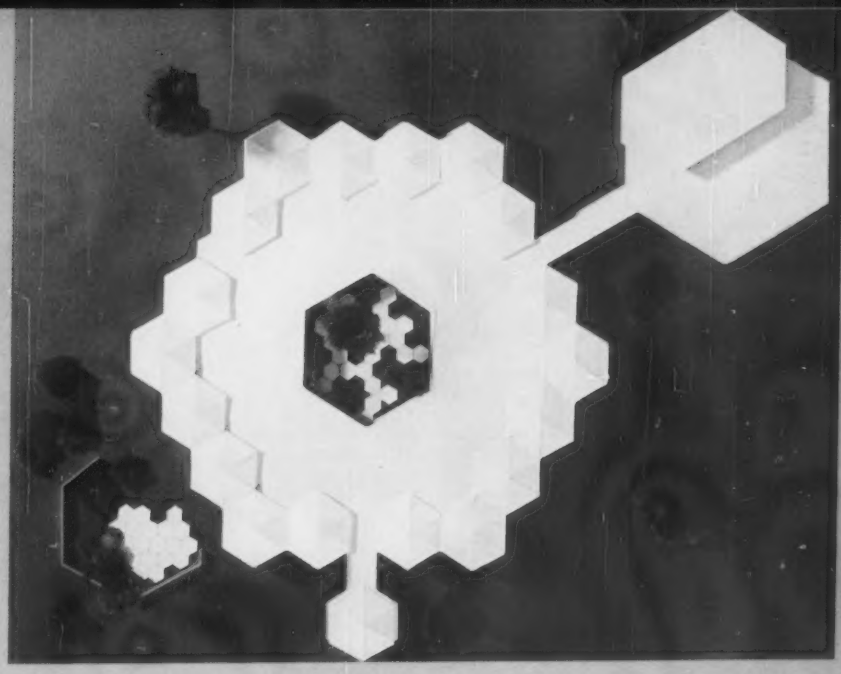
This six-classroom school was designed for eventual doubling and tripling of its capacity. One six-room addition is already under construction after less than a year of operation. The building was laid out so that existing trees could be retained. Large covered outdoor areas were provided around the kindergartens. A "hat" of clay roofing tile over the multipurpose room preserves the low roof-line and harmonizes with the residential surroundings. The structure is of steel, with bearing walls between classrooms.





MEATHE, KESSLER & ASSOCIATES

Two "graduates" of the Yamasaki office established this firm in Grosse Pointe in 1955. Meathe, a University of Michigan graduate, now 35, had been associate in charge of production at Yama's after ten years there. Kessler, 36, has degrees from the Institute of Design and also Harvard, where he was instructor in design for a year. With a clear division of responsibility between the two principals, the firm has been exceptionally active. It already has four national AIA awards to its credit, three for houses and one for the Mount Clemens Housing Development. Among the various projects recently completed is the remodeling of a house originally designed by Alexander Girard, which is presented as the INTERIOR DESIGN feature of this issue.



Jennie May Fleming Elementary School • Detroit, Michigan • Meathe, Kessler & Associates, Architects

There are a number of exciting school jobs currently on the boards. In this one, teaching and administrative functions are housed in a compact ring around a central court; general classrooms are arranged around the perimeter, with the special teaching rooms facing the court and near the grades they serve. The exterior expression of the individual rooms gives the whole building the appearance of a cluster of small-scale "houses." The multipurpose gym and performing arts room are combined in a separate, connected structure.

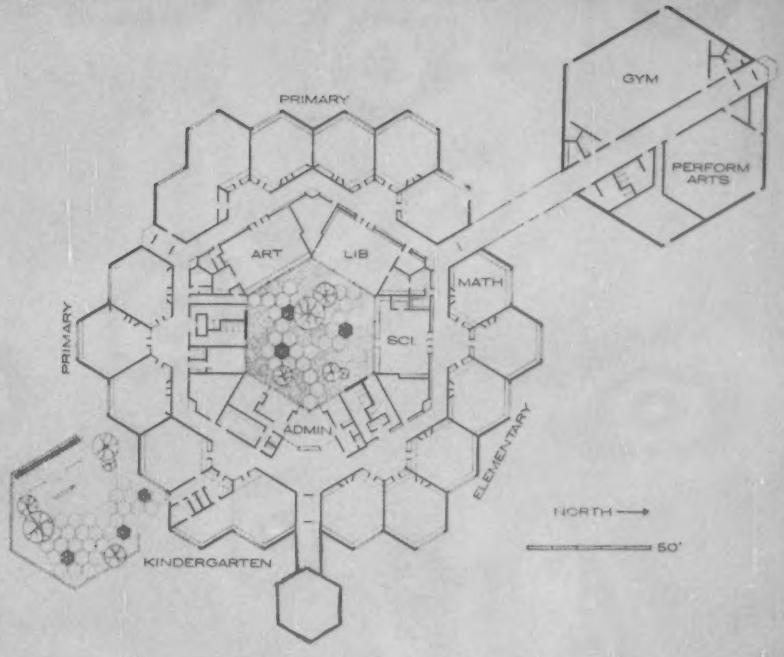


Photo: William Neufeld

OLAV HAMMARSTROM

Hammarstrom came to the United States in 1948 to supervise the completion of the new dormitory by Alvar Aalto at MIT. Behind him were several years of independent practice in Finland, where he had done considerable work in city and regional planning, industrial developments, and housing projects. He stayed here to become a designer in the Saarinen office and married Marianne Strengell, director of the textile department at Cranbrook Academy. In 1951, he went to Japan and the Philippines under UN sponsorship as an advisor on the development of furniture and handicraft industries. Since leaving Saarinen in 1954, he has avoided large firms and large commissions, maintaining a one-man design office where he can "follow through a project in undisturbed concentration from the first line to the last detail."

The Chapel of St. James the Fisherman • Wellfleet, Massachusetts • Olav Hammarstrom, Designer

Rising from a pine-covered knoll along the main road to Provincetown, this Episcopal summer chapel blends so well with the locale that tourists assume it to be an "old landmark." Actually, it represents a sharp departure from the tradition of churches in the area, both in its use of natural spruce siding and in its interior plan. The concept of the central altar, suggested by Bishop James A. Pike, is emphasized by the pattern of the structural members and by the concentration of light at the center. Prefabricated plastic skylights have been used above the altar; windows at floor level around the entire building provide ventilation and supplementary lighting. The baptismal font and the cross over the altar were executed by Hammarstrom. The cost of the chapel, including furnishings, was $27,000.

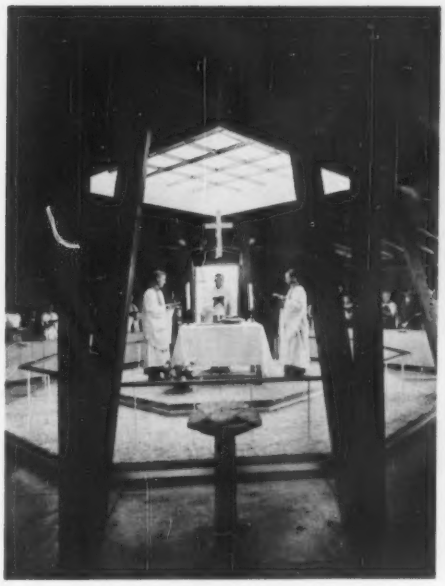
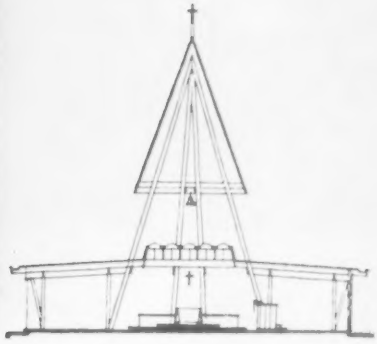
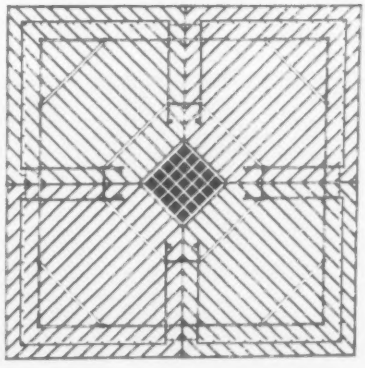
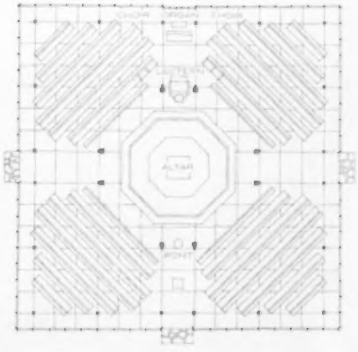
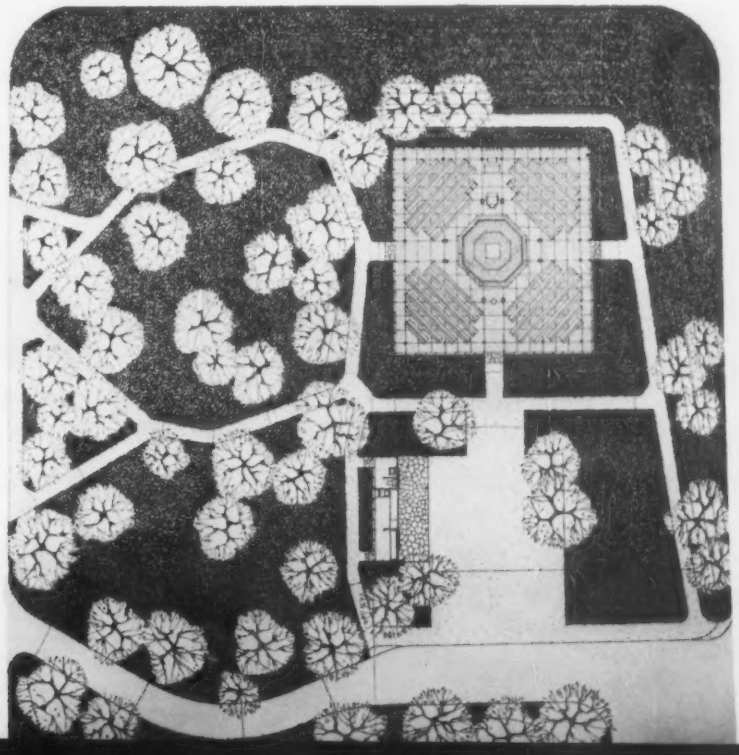


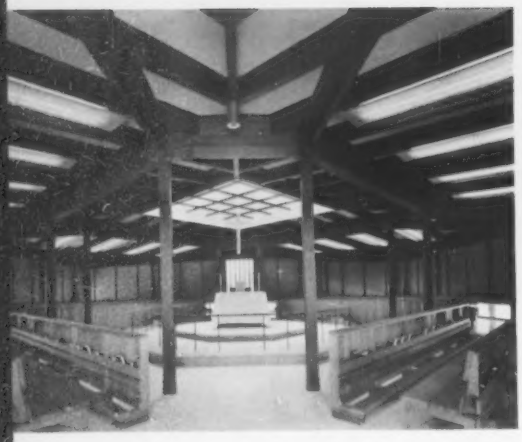
Photo: Joseph Molitor











St. Anselm's Episcopal Church • Lafayette, California • Olav Hammarstrom, Designer • Claude Stoller of Marquis & Stoller, Associate Architect

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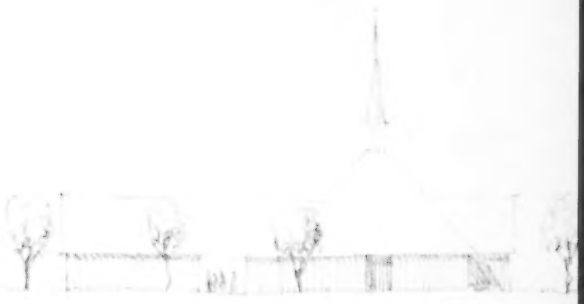
The central-altar plan advocated by Bishop Pike has been applied again in this mission church, which is slightly larger than the Wellfleet chapel, but similar in layout. Its use throughout the year necessitated insulation, heating, and electricity; seismic conditions dictated heavier structure and extensive site preparation. Sanctuary, campanile, and parish hall have been set around a rectangular plaza.

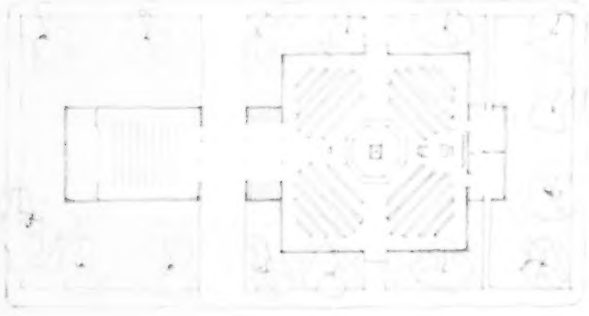
Photos this page: Roger Sturtevant

Studies for Small Missionary Churches by Olav Hammarstrom

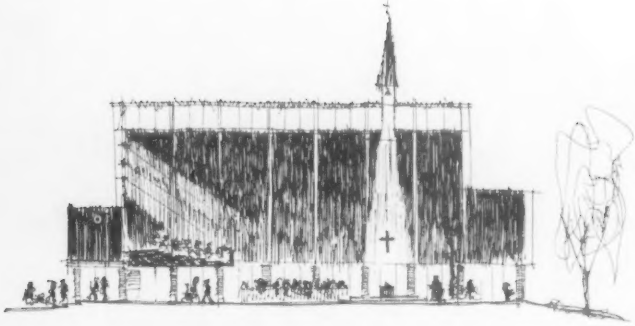
Discussions with Bishop Pike led to a study of prototype plans for small missionary churches that would permit expansion from a permanent nucleus comprising altar, pulpit, and baptismal font. The common practice of degrading the original sanctuary to an auxiliary status as a new and larger one is built would thus be avoided. The two completed churches were taken as a starting point, but the roof form of these buildings did not in itself express their religious function, nor did it lend itself to expansion. A rectangular variation of the basic scheme, with a free-standing altar at one end *(bottom of page)* would permit linear expansion by the addition of structural bays. The potentialities of a triangular plan are illustrated on the following two pages.

Photo: Marianne Strengell

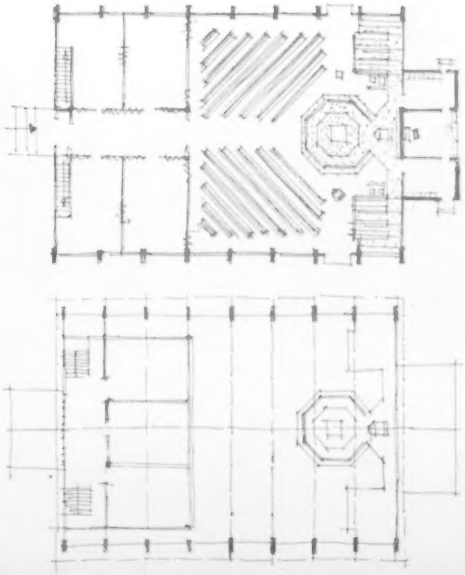


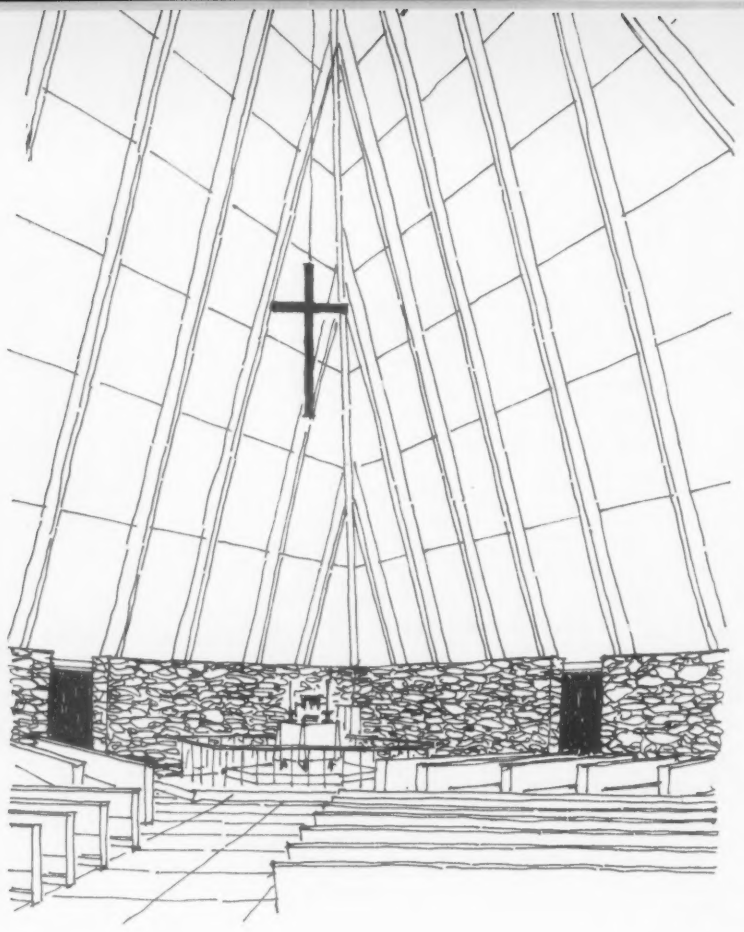


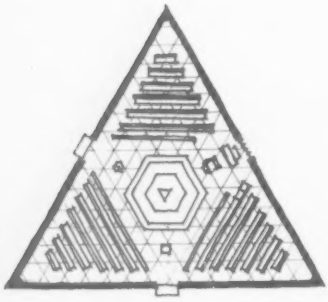
Here, vestry, narthex, and parish hall have been added to a square sanctuary similar in plan to the completed churches. An alternative roof form (photo) *would be more adaptable to expansion.*



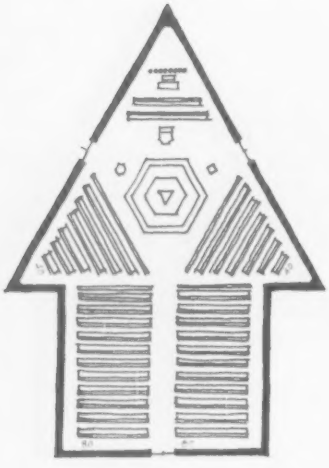
In this rectangular scheme, the sanctuary would be built at its estimated final size. Initially, classes and other activities would be housed on two floors within it.







The area required within the communion rail determined a minimum size for the square sanctuary. Eliminating one corner to produce a triangular plan permits an even smaller initial area and allows the altar to remain at the geometric center as wings are added in three directions.



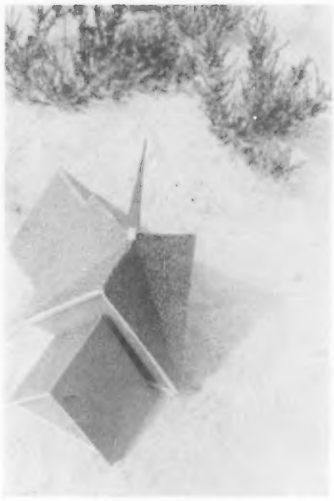
Photos: Marianne Strengell

The churches which Olav Hammarstrom has designed are a sound presentation in contemporary architectural terms of the basic principles of Christian worship. The centrality of the Holy Table, the seatings of the congregation around it, and the inclusion of the clergy in the same seating as the laity provide the best forum for both the Service of the Word and the Service of the Holy Meal. Having ministered in both of the completed churches, I can affirm that the old realities take on a new meaning and are "existentially" grasped more deeply.

I favor the reading of the lessons by laymen dressed in street clothes; in a church like this, a layman who is seated with the family can simply rise in place and read from the Bible. I believe that the principal function of a choir is to serve as "prompters," leading the congregational singing of virtually all parts of the service, rather than as "performers"; in a church of this type the choir is simply part of the congregation, just as are the clergy. One important aspect of the Eucharist, often lost, is the sense of fellowship in the Heavenly Banquet; with everyone around the Table, this point is far from lost.

From the practical point of view, the designs of these churches provide seating for more people at less cost. This, too, is important in rapidly expanding areas where we have to provide the most for the least—and quickly.

THE RIGHT REVEREND JAMES A. PIKE
BISHOP, DIOCESE OF CALIFORNIA



A more complex variation of the roof form produces a profile reminiscent of the Gothic. When wings are added, the visual dominance of the original sanctuary is maintained.

BIRKERTS & STRAUB

Less than two years ago Gunnar Birkerts and Frank Straub, both former principals of the Yamasaki office, established their own firm in Birmingham. This year they won a First Honor Award from the AIA for their first completed job, the house presented here.

Birkerts, a native of Latvia, came to this country after receiving his diploma from the Technische Hochschule at Stuttgart in 1949. He served his apprenticeship in the office of Perkins & Will in Chicago and went on to spend four years as a designer for Eero Saarinen before joining Yamasaki. Straub, a University of Michigan graduate, spent five years with Yama.

One of Birkerts' design objectives is the elimination and simplification of detail, which, he feels, has become too involved in the recent past because of rigid adherence to structural criteria. He wants to reduce the multiplicity of details by permitting variations in spans and spacing of members without corresponding variations with section.

Summer Residence · Northville, Michigan · Birkerts & Straub, Architects

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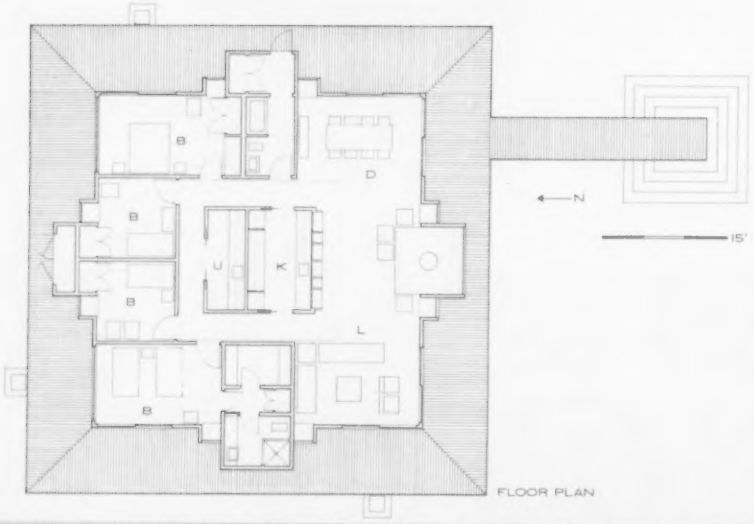
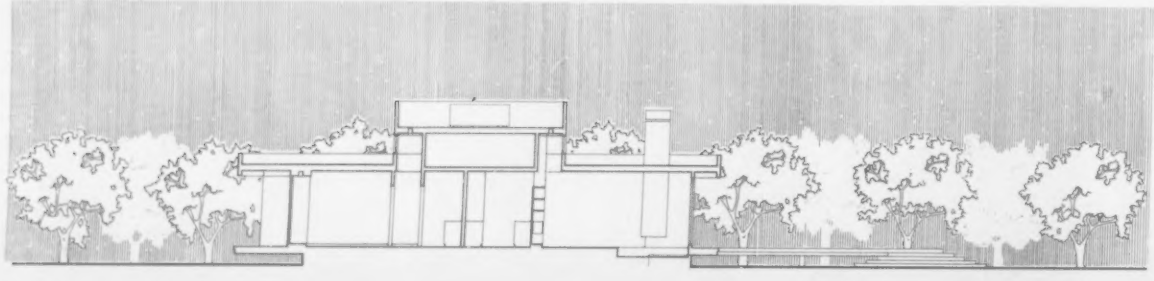
Situated in a level 400-acre apple orchard, on the axes of two "lanes," the house presents four almost identical faces to the uniform pattern of trees. Service elements form solid projections at the center of each front except one, where there is, instead, a glazed fireplace alcove. The narrow "windows" at either side of these projections have been framed in deep recesses to distinguish them from the adjacent "glass walls." Wide overhangs protect



FLOOR PLAN



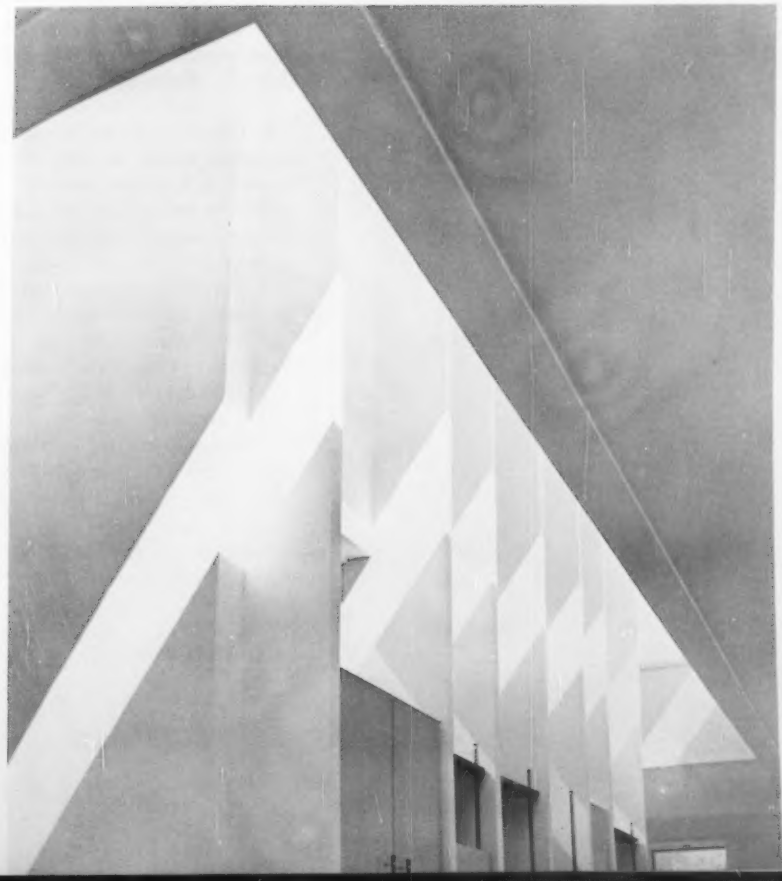
these walls from the sun; daylight is admitted through a clerestory and reflects from the walls of the kitchen-laundry core to provide balanced natural lighting.

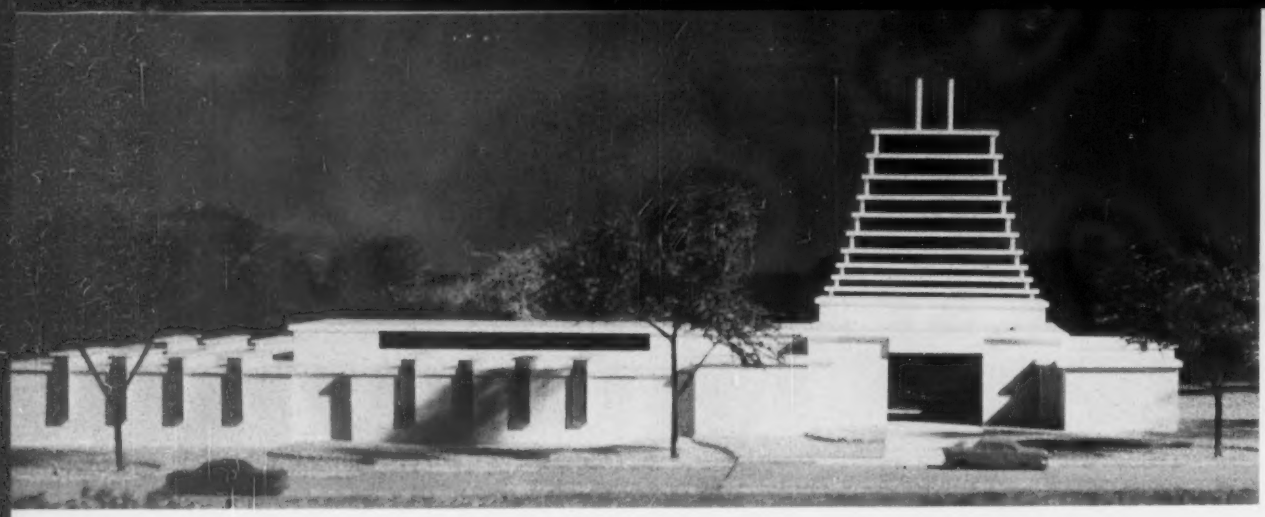
To establish its identity amid the sea of foliage, the structure was given a distinctly sculptural form, painted completely white, and raised on a platform that appears to hover just above the ground.

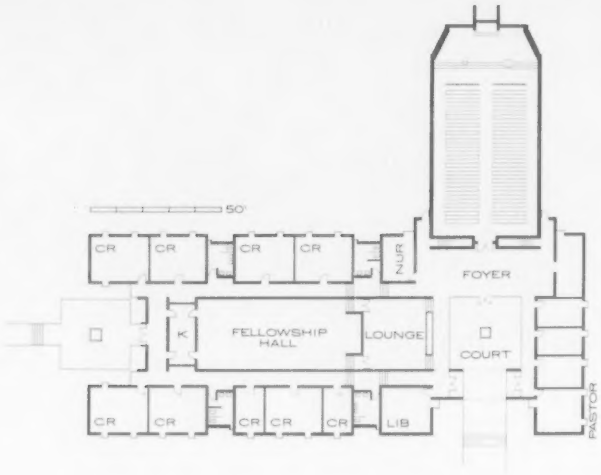
The entire interior is white, with vivid colors introduced in furniture and rugs. Joints and other structural details have not been articulated; however, architectural details such as those at the window heads (*left*) and the ceiling plane (*right*) have been expressed throughout for spatial effect.

The supporting structure is of the conventional frame type; stressed-skin plywood box girders, used for major roof spans, determined the depth of the fascias.

The cost of the house, excluding heating and air conditioning, was about $25,000.



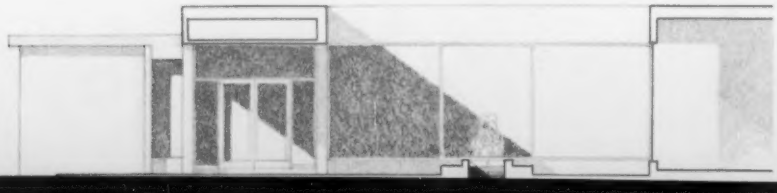


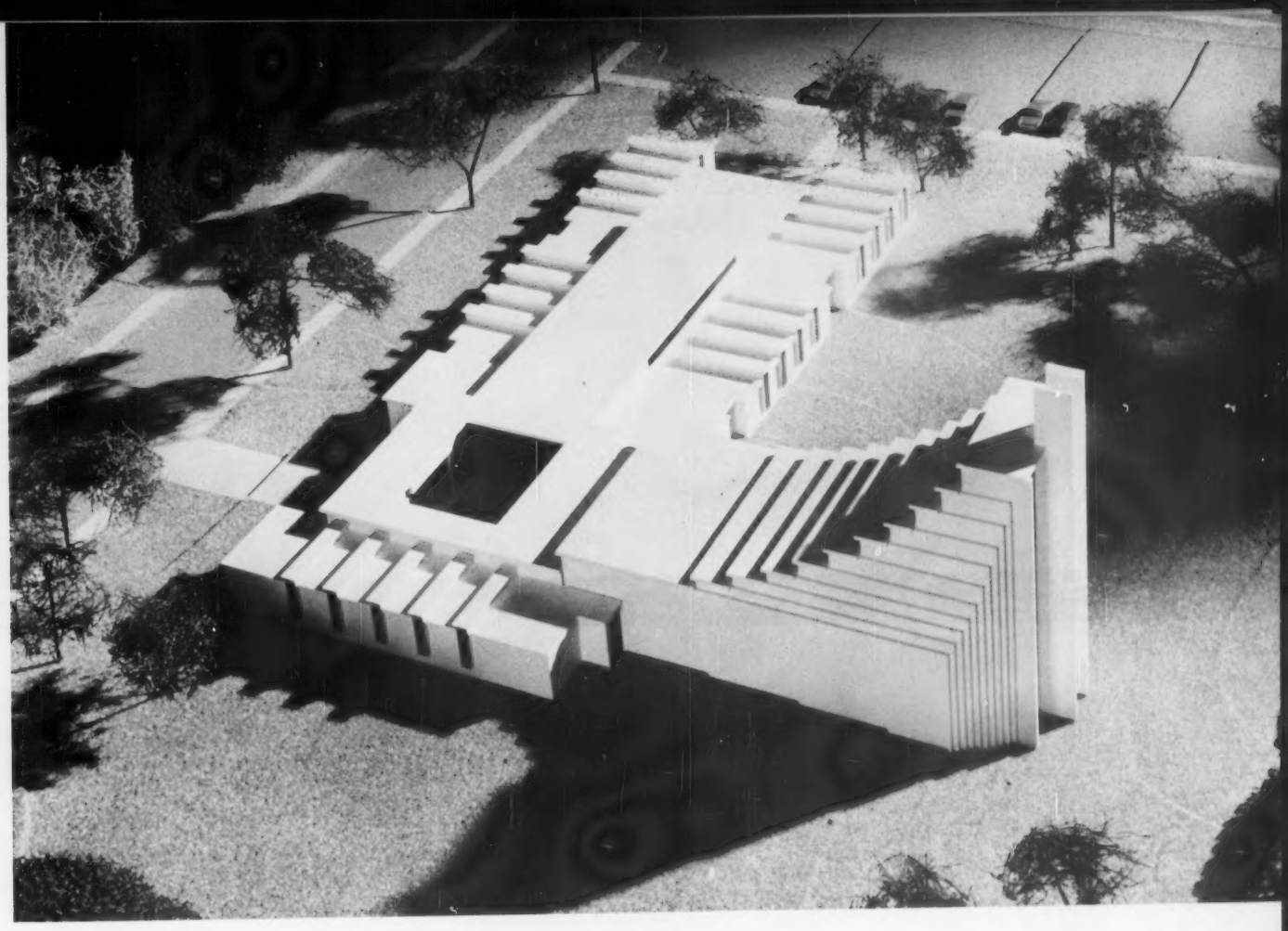


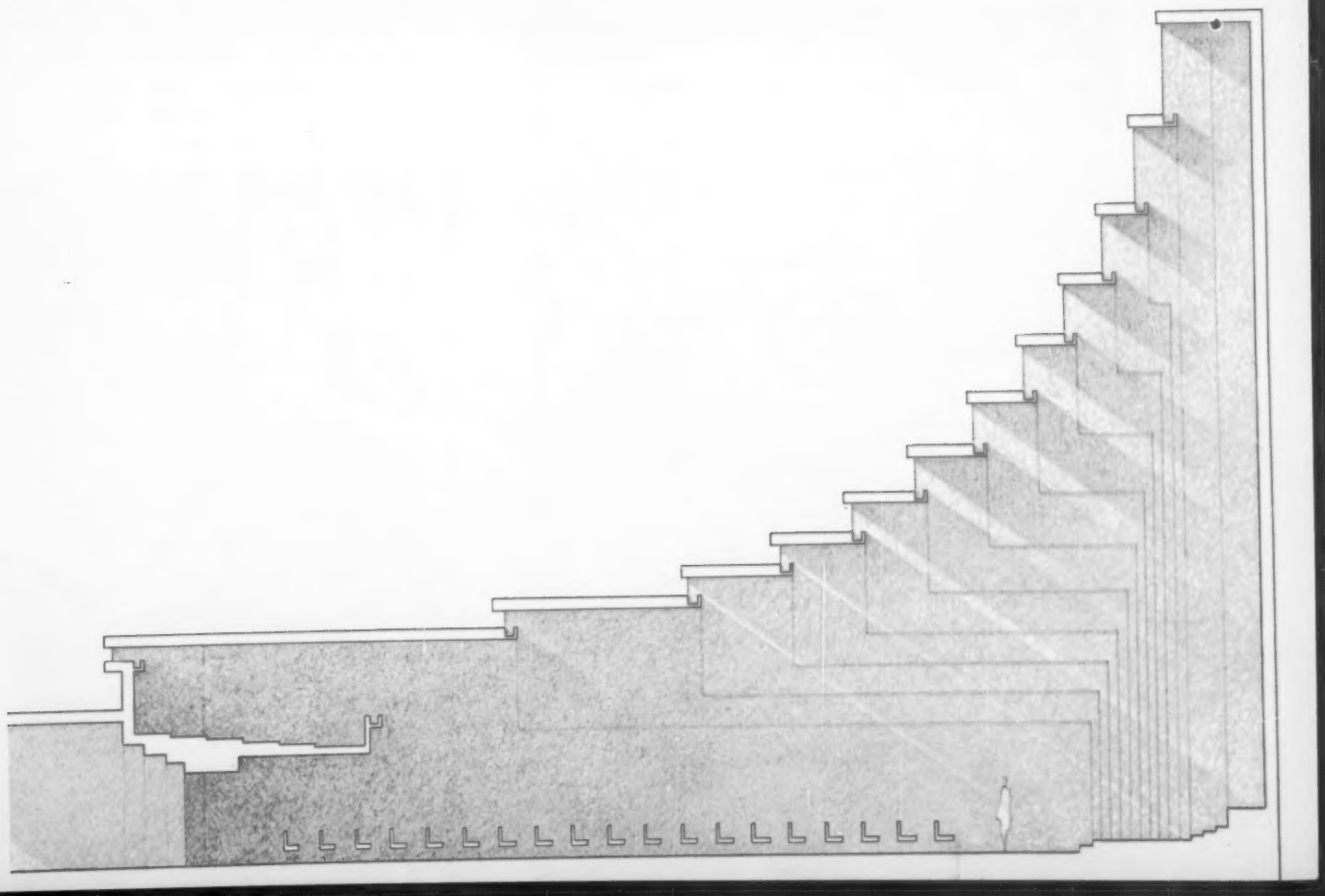
Grace Evangelical Lutheran Church · Albion, Michigan · Birkerts & Straub, Architects

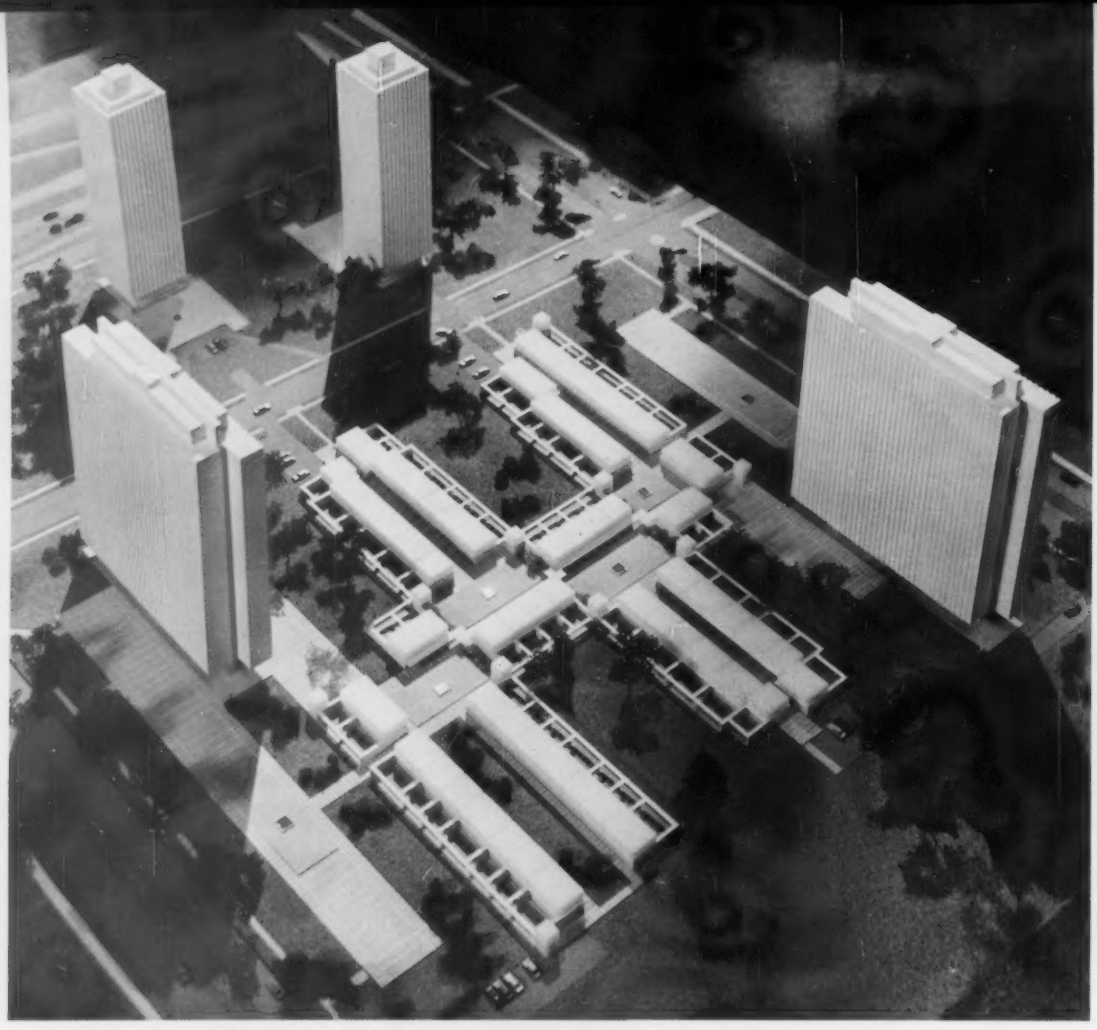
The sanctuary of this church will be approached through an open court that will provide a transition from the street; a secondary axis of approach will pass from the parking area through the social wing to the court and foyer. Inside the sanctuary, a dramatic religious atmosphere will be created by the gradation of light from the low darkness under the loft to the brightness of the altar wall, which will appear to dissolve in light as it rises.

The first stage of construction includes the fellowship hall and several of the classrooms flanking it; the second stage comprises the rest of the church. The structure will be of wood frame with brick veneer, except for the sanctuary area, which will be of exposed concrete.









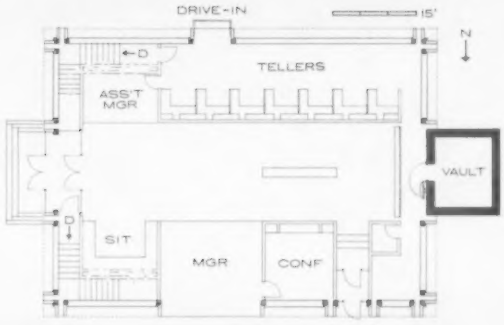
Lafayette Apartments and Town Houses · Detroit, Michigan · Birkerts & Straub, Architects

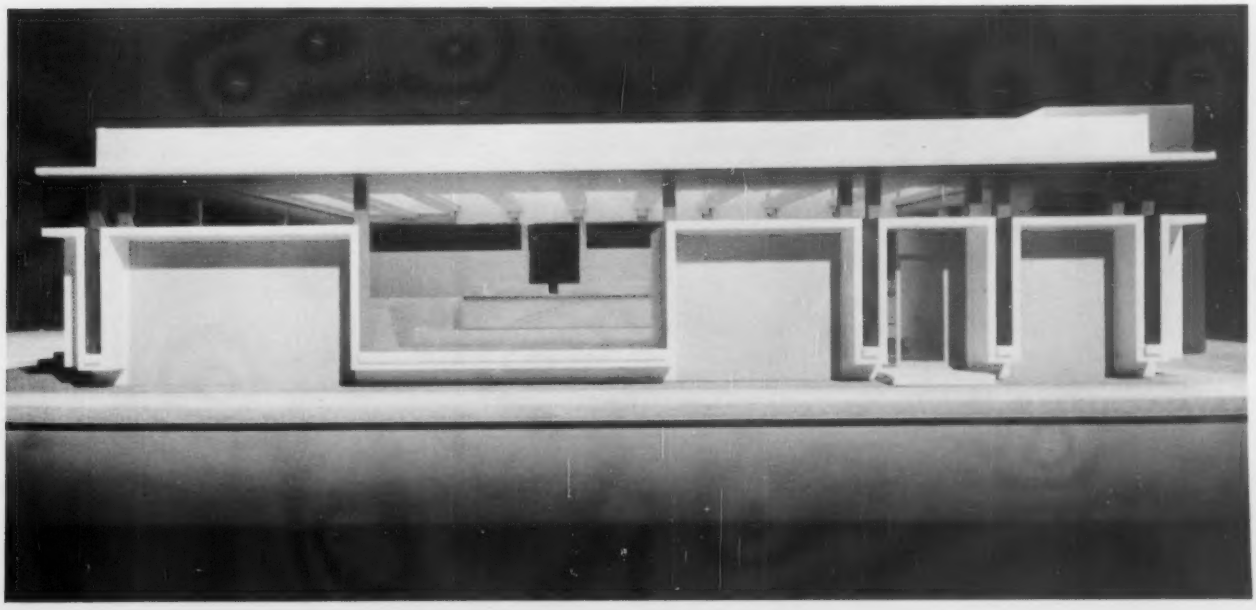
Turning its attention to large-scale residential design, the firm sought to eliminate the drawbacks common to many developments of apartments and town houses: lack of privacy for the town houses and excessive parking areas. For a site in the Gratiot area, just south of Mies's development, Birkerts has laid out a community of town houses with high-rise slabs at two corners. (The towers at the upper left, in the photo above, are not in this project.)

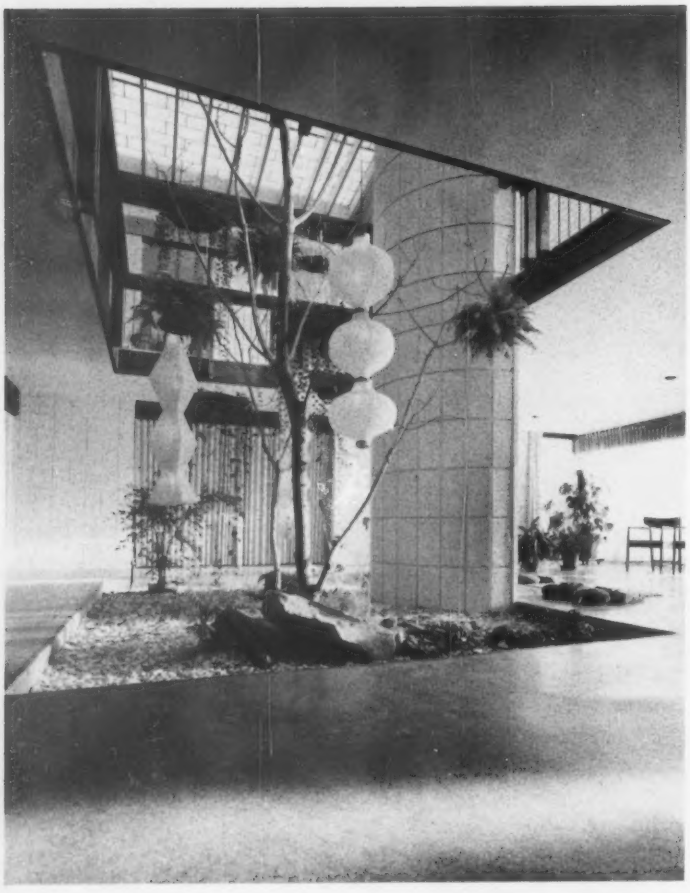
The town houses will be raised a full story above the street; wide overhangs, baffle walls, and arbors over the private patios will provide effective seclusion from neighbors and surrounding boulevards. All parking and heavy delivery will be underground. The "streets" and plazas between the town houses will accommodate pedestrian traffic.

Branch Office, People's Federal Savings & Loan Association of Detroit • Royal Oak, Michigan • Birkerts & Straub, Architects

Birkerts' design approach is clearly illustrated in this small structure. Within a basically symmetrical form, many elements have been asymmetrically placed. The wall is made up of three components: a plane of solid brick, a plane of glass two feet in front of it, and a precast concrete band connecting them, which dips to the floor at irregular intervals to frame windows. Columns flank each opening in the brick; the spandrel beams they support are constant in section despite variations in span and loading.







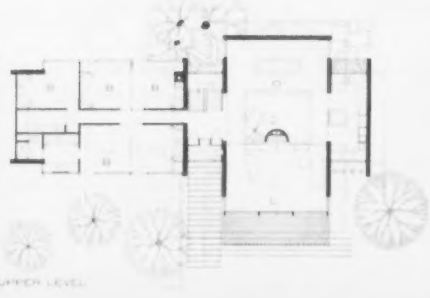
BEGROW & BROWN

Jack Begrow and Jack Brown established their partnership in 1957, when they won the competition for the National Cowboy Hall of Fame and Western Heritage Museum in Oklahoma City. After seven years of professional training at the University of Michigan, Begrow worked for several firms in the Detroit area, including the Swanson and Yamasaki offices.

Brown received a B.S. in naval architecture at the same university, but never practiced in that field. Both partners take part in all phases of their widely diversified practice.

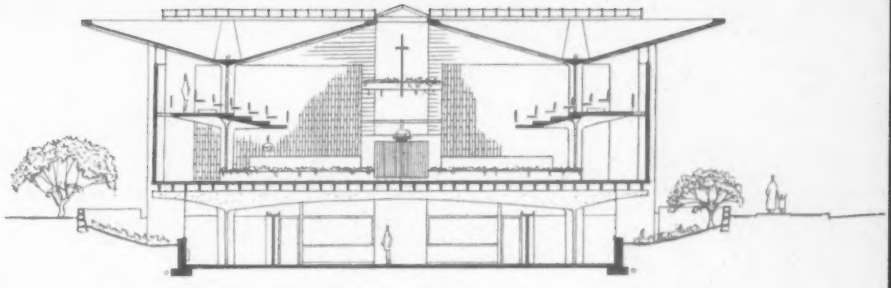
Residence · Bloomfield Hills, Michigan · Begrow & Brown, Architects

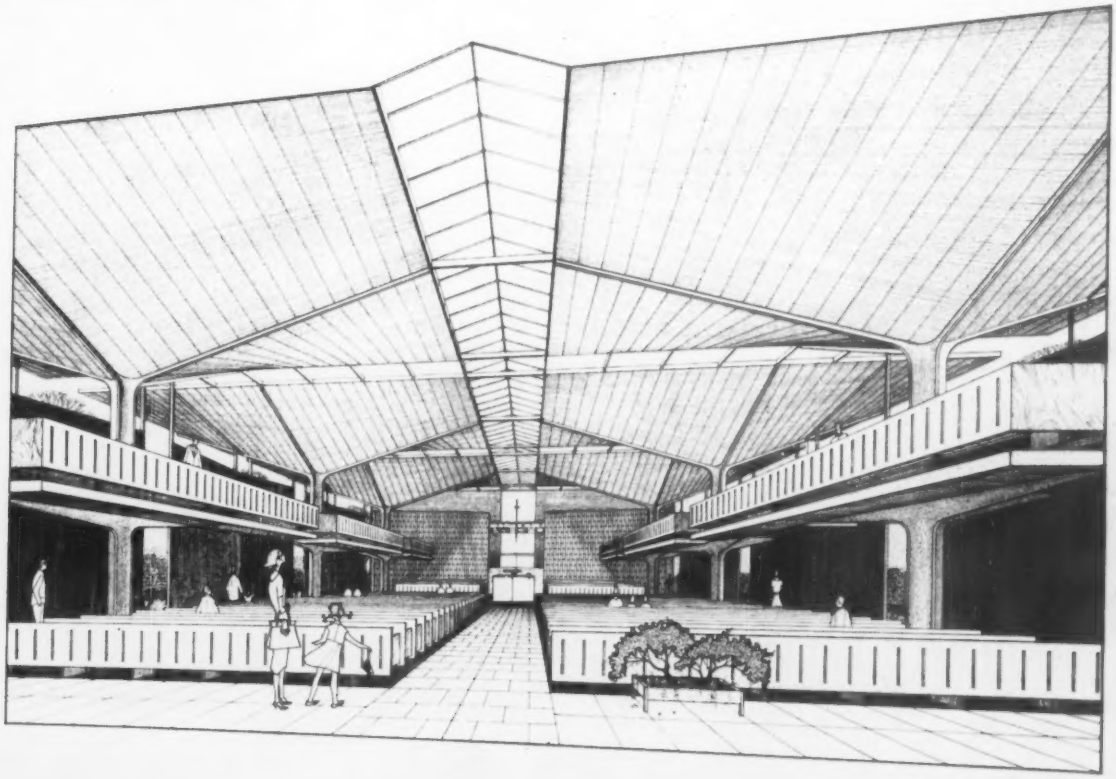
An indoor garden, rising through a two-story well to a 12′ x 24′ skylight, serves as a focus for the two-level living area of this suburban house. The lower informal area includes a studio for the client's wife; the upper level, commanding a view of a lake to the west, is primarily for entertaining. Concrete-block bearing walls were used for economy and to permit freedom in adjusting the finished grade.

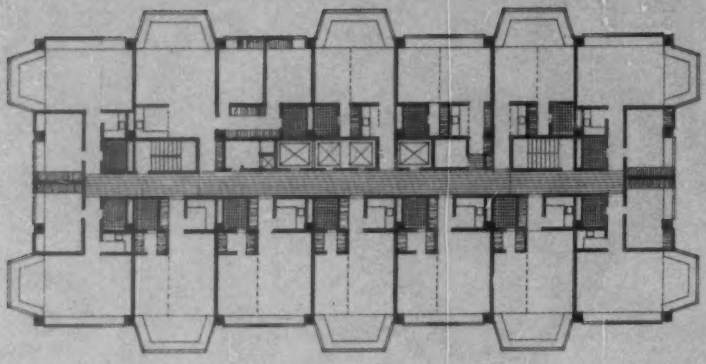


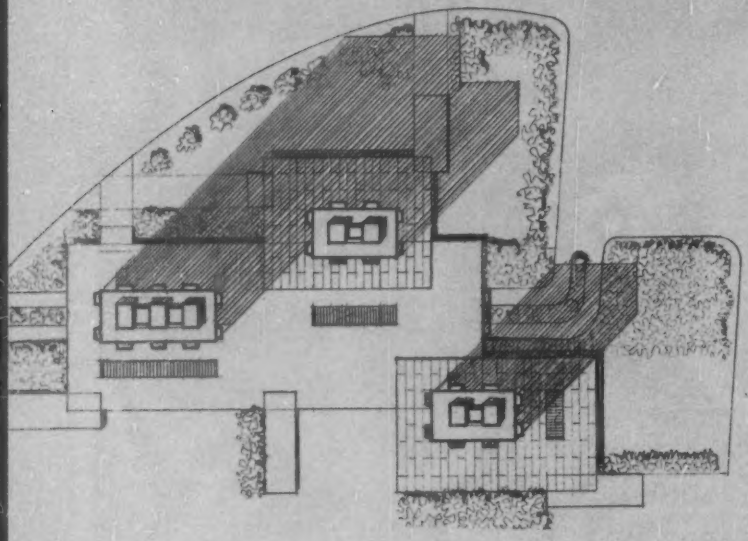
Addition to Van Dyke Baptist Church • Warren, Michigan • Begrow & Brown, Architects

The restricted size of the site dictated a compact two-level solution. Balconies add an overflow capacity of 300 to the 800-seat sanctuary. The structural independence of the six concrete hyperbolic paraboloids is emphasized by bands of skylight between them; their outward and upward thrust is expressed on the exterior. A wood screen will be applied to the exterior of the existing building (left in photo above).









STICKEL & MODOY

Both Fred Stickel and Tony Moody were associates in Victor Gruen's Detroit office, where Stickel at one time was chief architect; both have also worked for Eero Saarinen. Moody spent 1951 and 1952 in Italy on two consecutive Fulbright grants. In 1955 he established a partnership with Mark Jaroszewicz, which became Stickel, Jaroszewicz & Moody in 1957, and assumed its present form in 1960.

Beaumont Towers · Detroit, Michigan · Begrow & Brown and Stickel & Moody, Associated Architects

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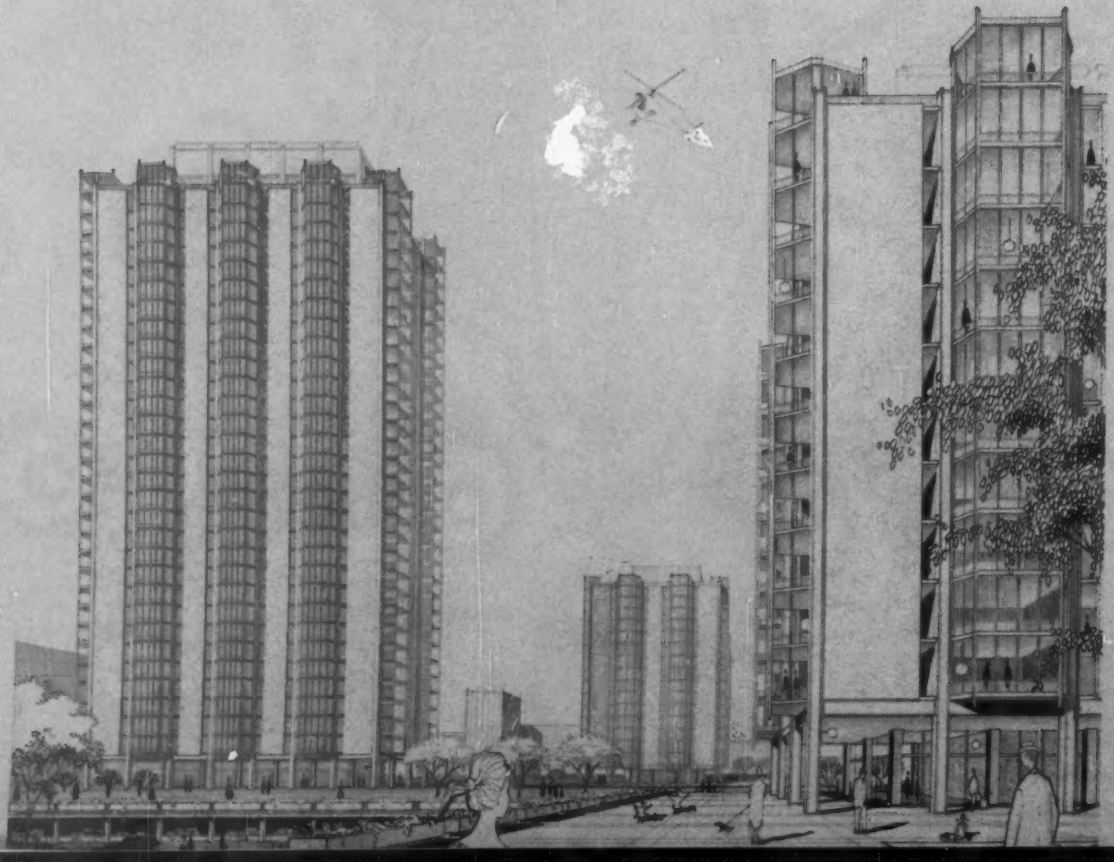
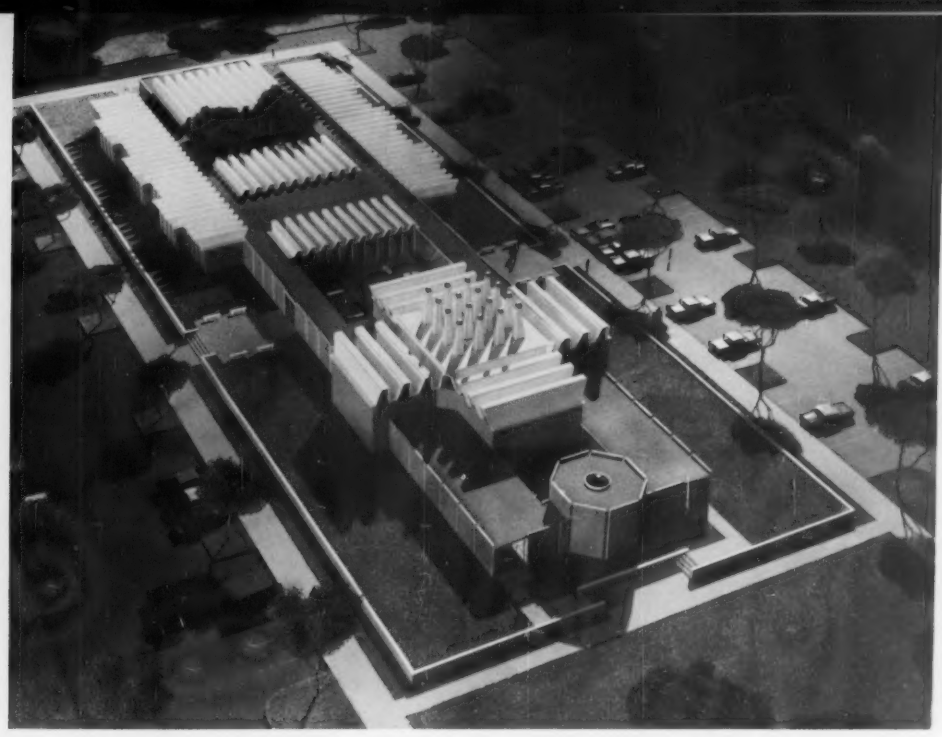
This cluster of towers will rise near Mies's Lafayette Park development and the project by Birkerts & Straub (page 110). The 30-story tower (*below left; plan above left*) will include 400 units, half of them efficiencies; the two lower buildings will include 220 co-operative units. All three will be set on a platform over a two-story parking garage. The cantilevered balconies will be enclosed for year-round use with floor-to-ceiling sliding doors.





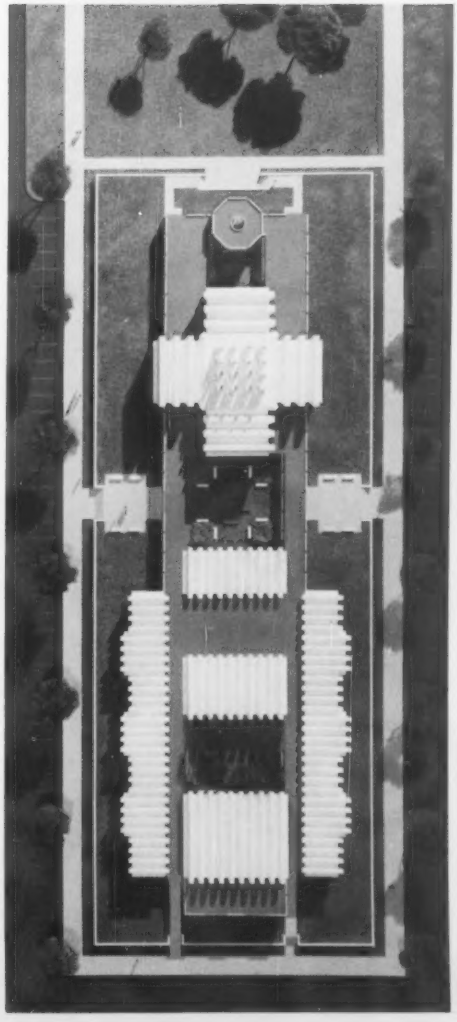
ROBERT SNYDER ASSOCIATES

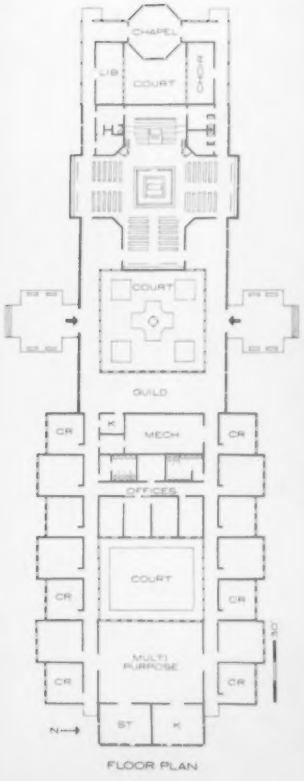
Bob Snyder served an apprenticeship in Albert Kahn's office after his graduation from Syracuse University. After a few years of teaching and private practice in Syracuse, he enrolled at Cranbrook in 1948 to study under Eliel Saarinen. When Saarinen died in 1951, Snyder was asked to "fill in" as Director of the Department of Architecture of the Academy. He has been directing it ever since, while at the same time carrying on his own practice.

St. Matthew's Church • Toledo, Ohio • Robert Snyder Associates, Architects

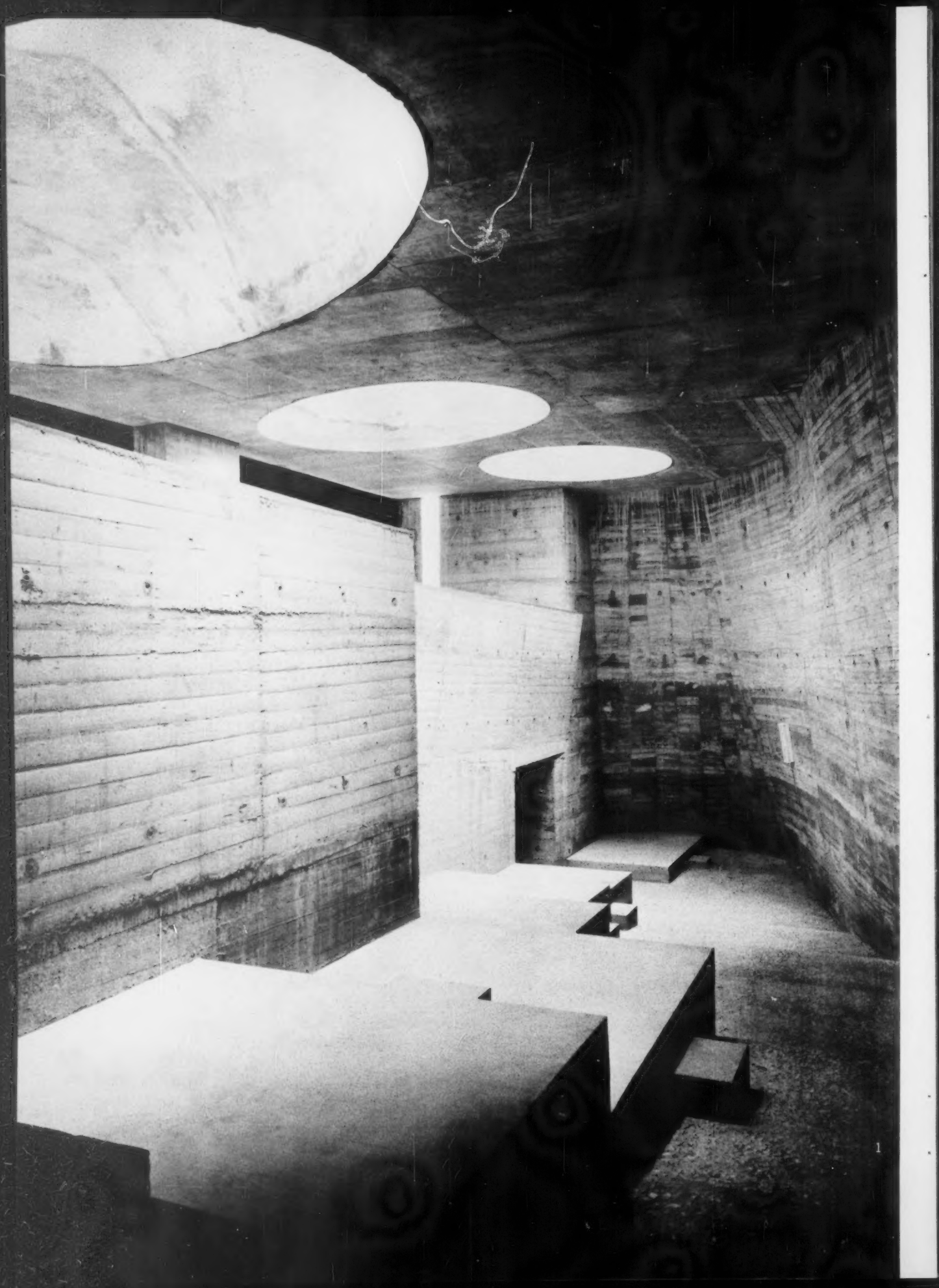
For a flat suburban site, Snyder has designed a formal complex that can be completed in stages. The expressive forms of the sanctuary and the chapel are located near the road; parking areas (a major requirement) will be at either side.

The plan of the sanctuary permits the congregation to gather around a central altar. The beveled corners improve sightlines and establish a relationship with the form of the octagonal chapel. A cluster of translucent "caps" will admit natural light above the altar; lighting fixtures at their peaks will provide night lighting similar in its distribution to daylight.





FLOOR PLAN



Photos 1, 2, and 3: Marc Neuhof

LE CORBUSIER AND LA TOURETTE

BY OLINDO GROSSI

One of the latest buildings by Le Corbusier, the monastery Sainte Marie de la Tourette in Eveux, France, is discussed in this article by the Dean of Pratt Institute's School of Architecture. The author, who recently visited La Tourette, which, it is claimed, cost less per square foot than any other recent French building, describes his impressions of the monastery masses and spaces and analyzes it in relation to other works by Le Corbusier.

The originality and daring of Le Corbusier's monastery near Lyons deserves the widespread acclaim it has received. The achievement in architecture of design principles that contribute to the development of a meaningful aesthetic is all too rare; but in Le Couvent Sainte Marie de la Tourette expressive forms, details, and materials mark just such an achievement in an exciting and moving way. Le Corbusier's new language, which is that of wet, moldable, flexible mass concrete (1), was begun at Ronchamp and in India, and at La Tourette leans to an even greater extent to the oppressive and brutal, to the involved and enriched baroque.

2

3

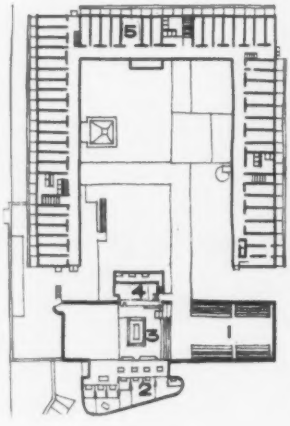
This vital and noble structure has a signal impact—one of deep aspiration derived from an ascetic, raw handling of materials that produce a stark, severe, and at the same time superior aesthetic, appropriately related to the life of the Dominican monks. They are pleased with their building, we learn, and contrast their happiness and radiance with the austerity of the building—an austerity expressive of their life of prayer, solitude, poverty, and study. One may ask, however, whether such harshness is needed to this extreme **(3)**.

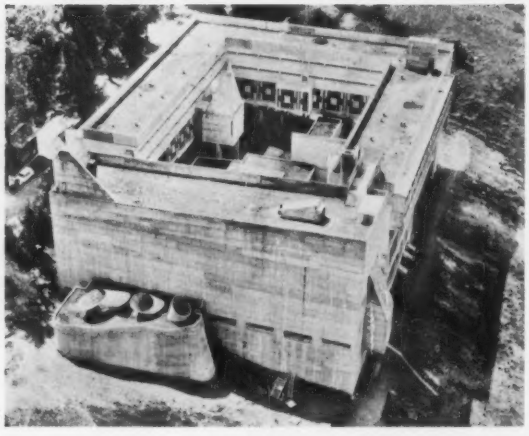
Le Corbusier's special talent for working with buildings that require a particular type of emotional expression made him a fortunate choice, for he apparently gave intense study to the many aspects of this design, which conveys so effectively a spiritual quality. An additional significant fact about this large and complex building is that it was constructed very economically and on a low budget.

This huge structure, reminiscent of Italian palace architecture **(4)**, with a large court partly open on two sides, is dramatic, powerful—even spectacular—in its domination of both landscape and onlooker. In the hands of the master, this otherwise heavy, even dull shape **(5)** is

4

1 Church
2 Chapel
3 Altar
4 Sacristy
5 Cells





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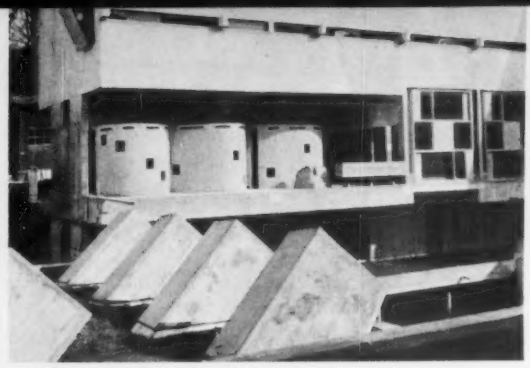

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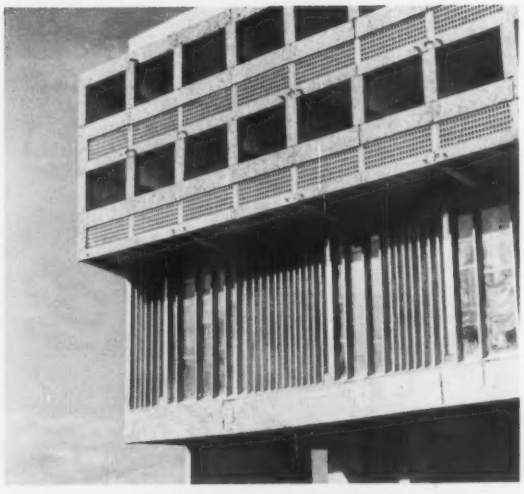

9

Photos 6 and 9: J. Caps

10

Photos 10 and 13: Olindo Grossi

given vitality through the ingenious and articulate details that are minor *tours de force*, yet which, in a frankly sculptural way, lend excitement to the masses and the planes. The church itself forms the north side of the court, its heavy, blank walls lending a static quality to the excitement. However, at the lower section of one important corner, elements of the façade are handled with little regard for continuity **(6)**. On the other hand, in function, the major elements work well within this courtyard scheme.

As the visitor approaches the monastery, he is greeted first, effectively and inspiringly, by the dramatic bell tower. The disparity of proportion between this bell tower and the severe, unpolished solid concrete base on which it is precariously perched, creates a relationship that is visually exciting **(15)**. Adding the greatest interest—although somewhat at the expense of a need for repose—are the abstract sculptural forms such as those for a chapel, library, visitor's cubicles, skylights, and corridor ends **(8)**. However, these effective, playful forms no doubt rescue the design from an otherwise unpalatable austerity. The rhythmic spacing of glass mullions, as opposed to more conventional even spacing, is delightful, and provides a graceful contrast to the very heavy and severe repetitive rows of "cellules" (which number a hundred), with their deep, shadowed balconies **(9)**. All of these elements, together with other effective and articulated details, are further contrasted with the large, heavy concrete masses at the corners. The entire feeling of extremes (in detailed finishes, weighty masses, penetrations, plastic forms, and uneven spacings) provide a wealth—even an intensity—of enrichment, a controlled excitement that removes in part the harshness of texture that underlies and actually inspires the structure. Noteworthy is the abstract treatment of the symbolic entrance motif, which one may walk through or walk around **(10)**.

The finishes of the concrete walls and of the structural elements are varied and have been applied with as much calculation as a painter uses in laying colors on his canvas. Smooth finishes, for instance, blanche noticeably as they merge into the rougher textures, which are crude and brutal and more expressive of strength and vigor. At the cellules, extra "roughing" of concrete seems forced. This type of architectural statement, however shocking in comparison to the more standard smooth finishes, at first almost repels; but once the viewer becomes more familiar with the structure, his emotional and spiritual response becomes molded by it,

true to the intention of the architect.

Le Corbusier's masterful expression of compressive load in concrete is admirable, but it becomes questionable when scale becomes so withered by it. A disturbing aspect of the design is its great reliance on weight at a time when the technology of construction has become so highly developed that the use of massive materials seems unnecessarily cumbersome and expensive. It is true that certain glass areas are handled with extreme lightness, and that certain contrasts are admittedly very desirable. However, the expression of qualities of isolation, security, and permanence might have been achieved with less insistence on tons of concrete. It would seem that the dignity obtained by use of fortress-like masses could have been achieved by methods less historically remote. In terms of the evolution of design, the emphasis on added and applied weight is misdirected and not germane at La Tourette, for it belies technical growth.

Another point open to criticism is Le Corbusier's overly free play with details and forms. Most of these are engaging and good fun, but taken together they constitute an unnecessarily complex ensemble (7, 8). The many abstract shapes of the court area, for instance, when viewed from a distance, cause confusion and detract from one another. The introduction of too great a variety of forms means that only a well-trained eye, one sensitive to the over-all design and the relationship of forms within it, can isolate and thus appreciate these forms individually, or against a moderately active background.

On a recent trip through France, this writer had the special treat of visiting several of Le Corbusier's earlier buildings. A comparison of these with La Tourette reveals the wide latitude of his genius. However, except for their emotive value in conveying a sense of primitive force, it is difficult to regard the brutal finishes of his later work as indicative of progress.

The Swiss Pavilion, a wonderful "old chestnut" in the early development of contemporary architecture, remains a meticulous, beautifully detailed, light and gracious structure (11), whose refinement is now indicative of the great change in Le Corbusier's aesthetic, especially in regard to details.

At Marseilles, Le Corbusier's work at the L'Unité d'Habitation (in front of which, incidentally, is a bus station named "Le Corbusier") remains a tremendous achievement, in which he early set forth the multi-use building in a dynamic pattern (12), presaging future multifunctional structures. In the case of this building, Le Corbusier was able to gain the necessary variances in local codes in order to achieve "le plastique" both in elevation and in plan. The shopping center in the middle of the building, and the recreation areas on the roof, were developed for the benefit of the tenants and of the exterior design. A spirit of friendliness among tenants is evident here in the ease and warmth with which they greet each other; at La Tourette, such a sense of community is naturally even more conspicuous, and is reflected in the name with which the monks have affectionately dubbed their building—the "Corbusiere."

The Brazil Pavilion in Paris (13) is handsome, but since it is a dormitory, even Le Corbusier had to be more prosaic in designing what is actually repetitive housing. However, the lounge areas, despite some poor finishes and details, do supply the sculptural element that is so typical of all of Le Corbusier's work.

In this writer's estimation, the purest expression of Le Corbusier's genius, and his greatest achievement, is the Chapel at Ronchamp (14), which was without question the greatest liberalizing force in architectural design in the 1950's. The consistency with which Ronchamp's imaginative sculptural forms and design details have been used may be appreciated in the unity of interior and exterior elements. Because the program was much simpler, the results were therefore more inspired than at La Tourette.

The monastery near Lyons, molded of concrete in a dashing, romantic manner, can be rewardingly studied for the positive enrichment it achieves through its strongly expressed formal and sculptural elements, which, in vigor, are closer to the romanticism of Frank Lloyd Wright than to the classic and refined approach of Mies van der Rohe. Here the rugged aesthetic of raw and bleak material and structure combine with dynamic forms to create an exalted expression, free from academic rules, one that is in total contrast to the monotony of two-dimensional curtain-wall construction. This plastic, baroque aesthetic developed by Le Corbusier is evocative, emotive, demanding of response. This structure is further indication that Le Corbusier's rich and explosive architecture, his feeling for animated space, make his continued leadership as master builder unquestioned. And it has made La Tourette undoubtedly one of the most important structures of our time.

Photo: G. E. Kidder Smith

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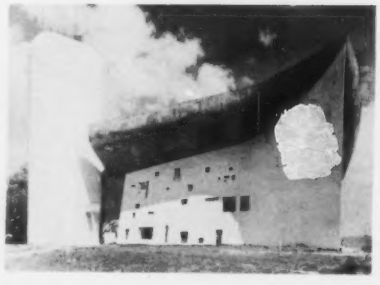

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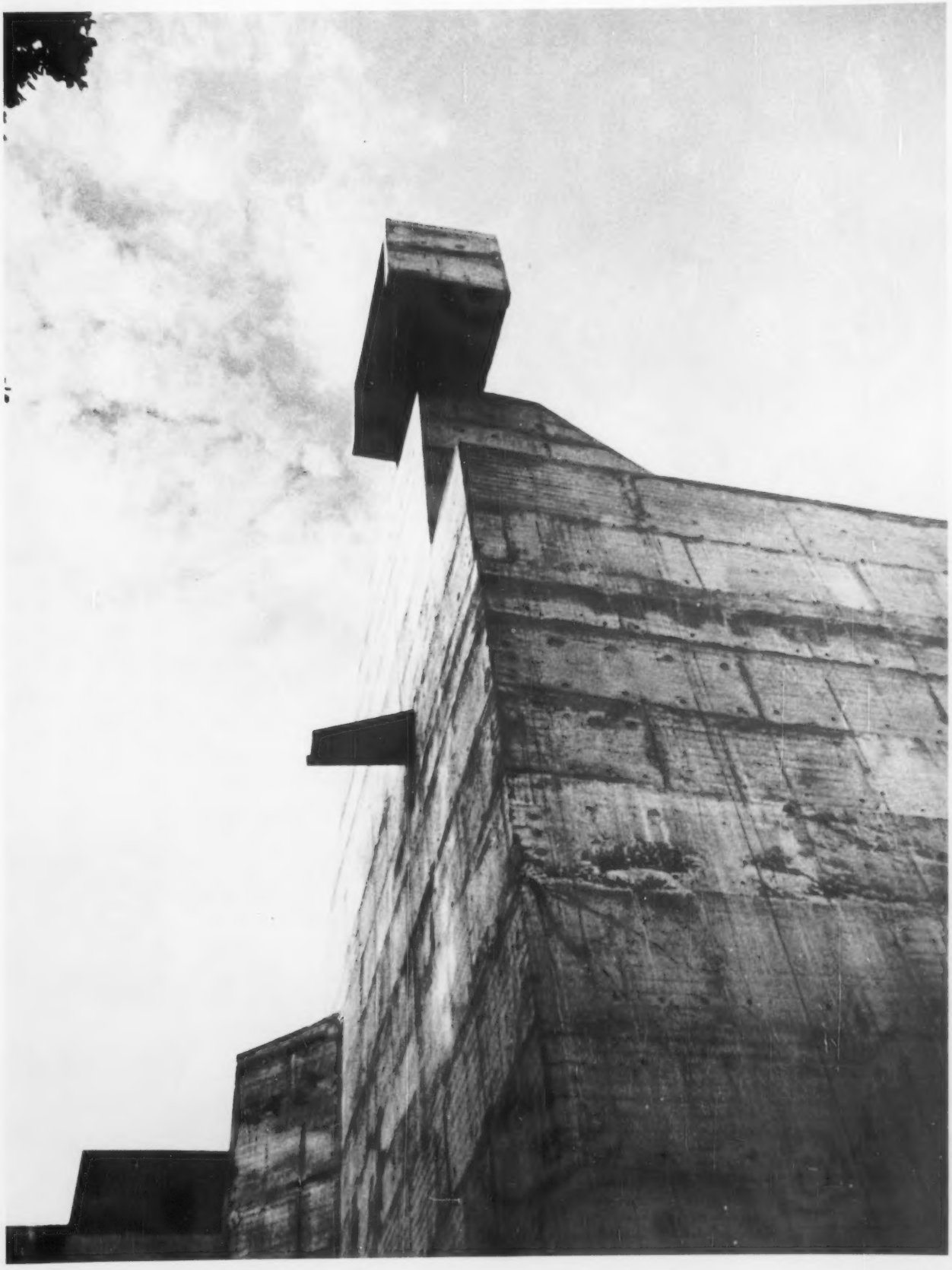


Photo: Lucien Hervé

CONTEMPORARY COMPENDIUM

Photos: Baltazar Korab

REMODELING AND REDECORATION • RESIDENCE, GROSSE POINTE FARMS, MICHIGAN • MEATHE, KESSLER & ASSOCIATES, ARCHITECTS AND INTERIOR DESIGNERS • CLARA BETTINA & ASSOCIATES, LANDSCAPE ARCHITECTS

Under tall conifers outside Detroit is a sprawling single-story residence that was designed by Alexander Girard in 1950. Basically rustic and informal, the house has a cedar siding exterior, pitched roofs, and exposed fir ceilings and beams. The social center comprises the living room with a conversation pit and free-standing fireplace, the dining room, a sitting room used as a television and bar area, and a music nook; radiating out from this core are a utility-service wing and two bedroom wings connected by glass-walled ramps.

After living in the house nearly ten years, the owners decided to add rooms where the family could gather other than in the main core and to make some changes in circulation throughout the house. The Detroit firm Meathe, Kessler & Associates carried out this program of building and remodeling with a conscious effort to respect Girard's design.

The program ultimately included a nearly complete redecoration of the interior. A move was made away from the rustic ornamentation of natural textures toward a more formal, urbane atmosphere prompted, perhaps, by the "return to elegance" that began in the middle 50's.

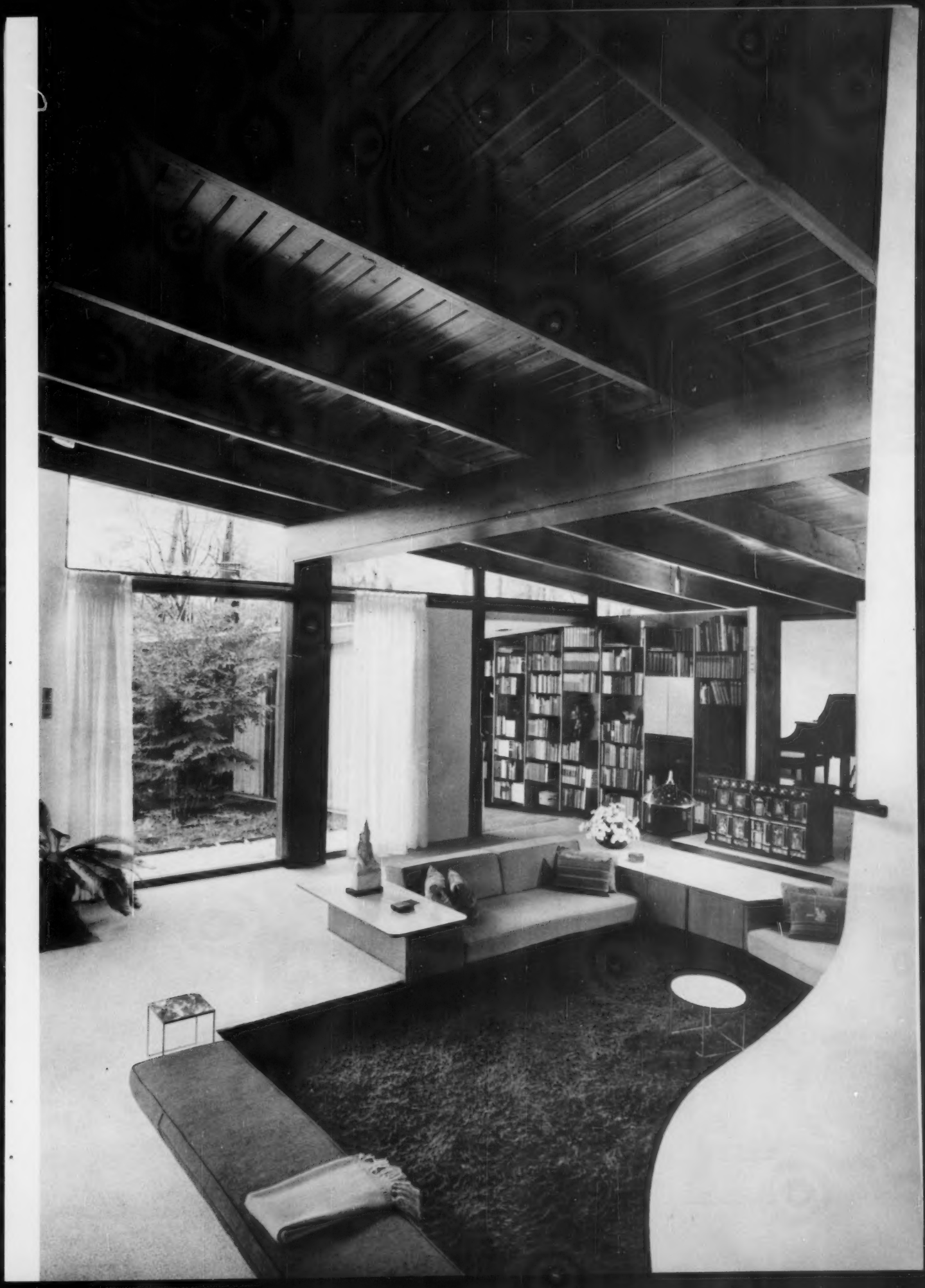
At one end of the larger bedroom wing an activity room was added, which gives the family an easily maintained game room accessible to the rest of the house through both the kitchen and guest-room wings. This room represents a revision of the exposed beam system with as much refinement as the architects felt continuity would allow.

The other bedroom wing was transformed into a comfortable library with an adjoining study; a new master bedroom was added beyond the library, giving the

DATA: descriptions and sources of the major materials and furnishings shown.

LIVING ROOM

Walls: sand plaster finish/U.S. Gypsum. **Ceiling, Columns:** fir/satin varnish/Durako. **Floor covering:** carpet/wool/loop/beige, gray, white/V'Soske Inc. **Conversation pit:** carpet/wool/high pile/black, olive, brown/V'Soske Inc.; sofas/Girard-design/custom-made; upholstery/ medium beige fabric/Knoll Associates; tables/oak plywood/ white Formica/Girard-design/custom-built; cushion seat/ purple fabric/Knoll Associates; pillows/multicolored Mexican fabrics; cube tables/steel/plastic tops/Frederick Lunning, Inc. **Fireplace:** metal frame/white sand finish plaster/Girard-design/custom-made. **Screen:** behind fire/ plastic strips/white/sandblasted on alternate sides/fixed to floor and ceiling/architect-designed/custom-made. **Draperies:** linen/white/Knoll Associates. **Lighting:** aluminum spots/Prescolite Manufacturing Co.; hanging fixture/brass/Finland House. **Bookcases:** walnut/aluminum/custom-made. **Planter:** granite slab.



A cluster of skylights under a dome illuminates the new entry.

owners a secluded unit to themselves. Only this separate wing makes a definite departure from the architecture that Girard had established.

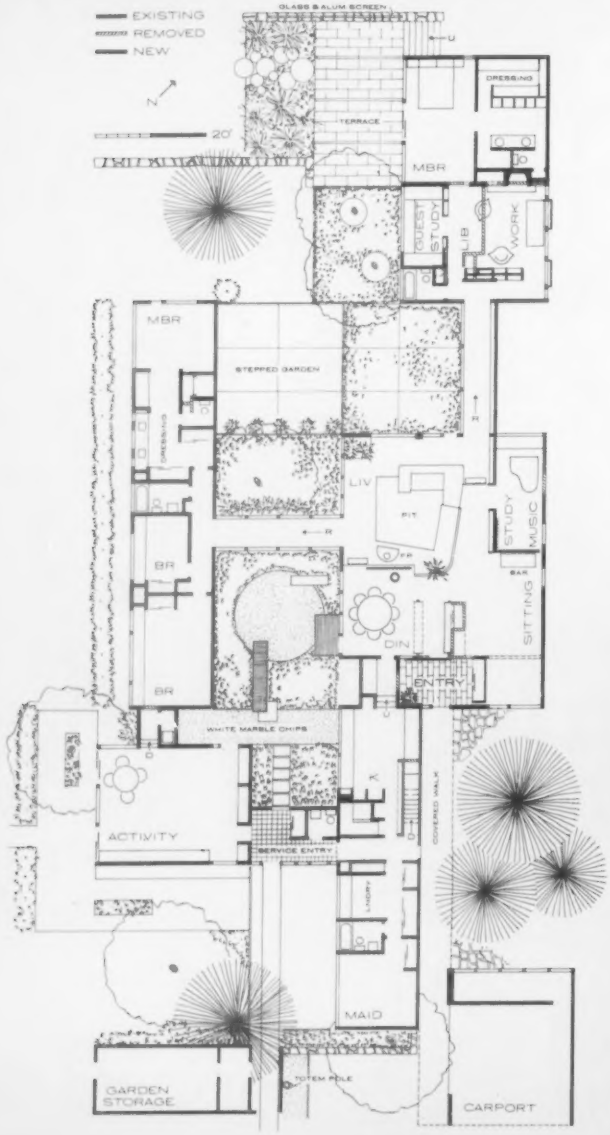
One sensitive change in circulation was the extension of entry and sitting room by two additional bays of the exposed beam system. This made possible a door from the kitchen into the entry, which saves steps in answering the front door and gives servants access to the living room without having to pass through the dining room during dinner parties.

Between the fireplace and dining room, where Girard had hung a white drapery, the architects installed a mosaic-like screen of narrow plastic strips sandblasted on alternate sides. Still delicate and light, the translucent screen provides a definite barrier between the areas.

The backgrounds of the newly decorated rooms are mainly monochromatic (beige, gray, and white) and within them bright, clear colors (orange, red, yellow, blue, and purple) are used splashily on chairs, pillows, paintings, ends of bookcases, and occasionally in carpets.

Some of the new furniture was specially designed by the architects, including the pedestal dining table, which accommodates eight chairs (see SELECTED DETAIL in this issue), and the headboard in the master bedroom, which adjusts like a deck chair to make reading in bed comfortable. The list of manufacturers and suppliers reads like a "Who's Who" of contemporary furnishings.

The total effect of the house is rich and varied, full of contrasts and surprises. It has the interplay of the rustic and the



Pure geometric shapes such as the precast circular steps (below) *are used to give the new landscaping a degree of design control compatible with the polished interiors.*

Dimmer-controlled recessed lighting under floral centerpieces adds a glow to the dinner table.

ENTRY
Skylight domes: Transite pipes set in wood decking/single plastic skylight over cluster/Wasco Products Inc./architect-designed.
TERRACE
Furniture: chairs, ottomans/aluminum bases/saran upholstery/weatherproof/Herman Miller. **Steps:** precast/white quartz aggregate/architect-designed/custom-made.
DINING AREA
Table: steel frame/sand plaster finish/bolted to floor/submerged center lighting/marble top/architect-designed/custom-made. **Chairs:** white pedestal/upholstered in eight colors/blues, greens/Knoll Associates. **Plantings:** Ficus Nitida, Aralia.

The study adjoining the beige-tone library (above) *has a purple carpet and brilliantly colored cabinet drawers.*

The bathroom (left), *master bedroom* (above), *and the library-study make up a separate living unit for the owners.*

urbane, the brilliance of color and cluster, which meld into a romantic and personal home. The honesty of naked structure, the amusement of the conversation pit, the vitality of large interior plantings, the sophistication of the furnishings, and the interpenetration of suave interior and exterior spaces combine to make the house a compendium of the best elements of contemporary interior design.

LIBRARY-STUDY

Walls: walnut panels/white madre cream marble/aluminum strips/black slate hearth/architect-designed/custom-made. **Carpet:** light beige/loop/V'Soske Inc.; in study, purple/V'Soske Inc. **Bookcases:** walnut/aluminum/architect-designed/custom-made. **Draperies:** Dacron, linen/light beige/Knoll Associates. **Cabinets, Desk:** yellow/red/orange/Formica/architect-designed/custom-made; over desk, beige to olive. **Lighting:** in study, fluorescent/plastic egg crate diffusers. **Desk chair:** metal frame/Kelly green fabric/Knoll Associates. **Lounge:** metal frame/natural leather/Frederick Lunning. **Chairs:** chrome frame/yellow red fabrics/Knoll Associates; metal base/plywood/black leather/Herman Miller, Inc. **Tables:** metal/glass/architect-designed/custom-made.

BATHROOM

Floor: vinyl asbestos tile/white/Kentile, Inc.; carpet/loop/bright orange/V'Soske Inc. **Basin cabinets:** walnut/chrome legs/white marble counter/architect-designed/custom-made. **Storage wall:** black, white Formica/architect-designed/custom-made. **Stool:** white pedestal/black leather/Knoll Associates. **Lighting:** fluorescent under skylight; panel recessed in basin counter; sandblasted rectangular light panels in mirror/lighted from behind/architect-designed.

MASTER BEDROOM

Walls: paint/off-white; walnut/natural. **Floor:** carpet/loop/light beige/V'Soske Inc. **Draperies:** Dacron, linen/beige/Knoll Associates. **Bed:** walnut/metal frame/adjustable headboard/white Formica/architect-designed/custom-made. **Bedcover:** orange, red, purple, blue, yellow, lurex silver, gold/Jack Lenor Larsen, Inc.

MUSIC CORNER

Walls: natural fiber paper/Kneedler-Fauchere; gold metallic paper/Denst & Soderlund. **Cabinetwork:** housing for hi-fi equipment/black, white Formica/aluminum trim/architect-designed/custom-made. **Lighting:** stainless steel wall fixture/architect-designed/custom-made. **Stools:** white pedestals/yellow, orange, blue upholstery/Knoll Associates.

ACTIVITY ROOM

Floor: light beige/"Tessera"/Armstrong Cork Co. **Cabinets:** green, blue, white Formica/Mutschler Kitchens Inc. **Table:** steel wire/white plastic top/Knoll Associates. **Chairs:** steel wire/black/black, white Naugahyde/Knoll Associates. **Lamps:** blue, plum, purple/Altamira.

Cabinets in the music nook house hi-fi equipment.

The activity room opens onto gardens through glass walls.

Whither Paul Rudolph?

BY PETER COLLINS

One of the more famous mavericks of the modern movement is discussed in this article by McGill University's Associate Professor of Architecture. The author analyzes Rudolph's work and speculates on his possible future development. The original version of the article appeared in The Guardian *(Manchester, England); it has since been somewhat modified by the author for presentation to P/A readers.*

Now that Frank Lloyd Wright no longer dominates the architectural scene, Paul Rudolph is probably the popular press's ideal choice for the role of American Form-Giver of the Space Age, since he was actually born and educated in the United States, and in appearance has all that appeal which we now associate with candidates for the Presidency. His boyish smile, his Ivy League haircut, and his air of quiet determination all produce a confidence-inspiring idea of conformity and good citizenship, whilst his gift for impressive but noncommittal utterances might well be the envy of the most experienced senator. ("The important thing about Ronchamp," he recently remarked, "is that it speaks to many kinds of people, as a chapel should.")

Yet his air of conformity is deceptive, for he is a bohemian and a revolutionary at heart, and leaped to fame ten years ago by producing one of the most ingenious and original summer cottages ever to be constructed in a land positively infested with summer cottages: a single-story house measuring 22 ft by 36 ft, built on such extraordinarily Giedionesque principles of suspension that it was immediately published in the more sensational architectural magazines. He now publicly derides this structure for its illogicality, but continues to astound the bourgeoisie with the novelty of even more enterprising architectural shapes.

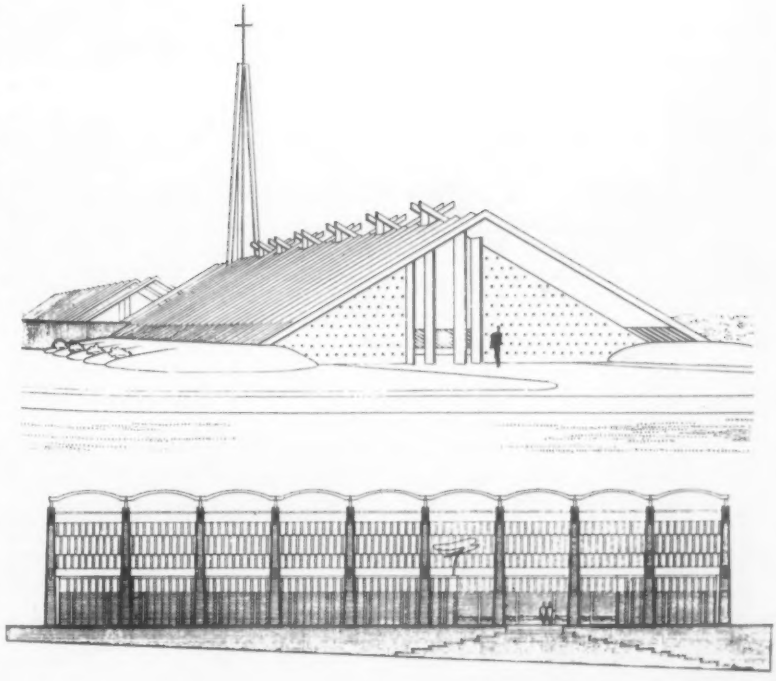
The variety of these shapes must have been particularly disconcerting to the art historian because they lack that one quality on which the latter's bread and butter depends—namely, classifiability. Not only have they the appearance of being unrelated to the work of other architects; they do not even seem related to one another in character, materials, or structural systems. On what principles, it is frequently rhetorically asked, are his designs based?

Paul Rudolph justifies the apparent inconsequence of his work by frankly explaining that he has as yet no fixed principles, and asserts that he is still searching for an architecture that will correspond to his own personality, and reflect with complete integrity his, as yet incoherent, sensibility as to what architecture should be. At first this may seem very modest, but it is tinged with an architectural arrogance peculiar to our age. "Avant moi le déluge," might be his motto. He designs as if no architectural vocabulary existed, and clearly intends to reject the 19th-Century idea that architectural forms develop by a co-operative evolutionary process. He does this, I am convinced, not because he really wishes to, but because of the inescapable pressure of publicity that has been built up around him. He is a classic product of those advertising techniques which, as J. K. Galbraith has pointed out, are now sapping the morale of North American society. On the strength of one or two modest, even though brilliant, little buildings, he has been fêted by the professional press, showered with important commissions (including a United States embassy), and ultimately raised to the chairmanship of one of the most influential schools of architecture on the continent. Every project that comes from his office is now widely publicized, minutely examined by architects and students, and prepared for inclusion in any histories of modern architecture that may be currently in the press. He can no longer afford to design anything

unsophisticated or subdued. His prestige will not suffer that his projects fail immediately to astound. However much he believes, as he professes to do, in a hierarchy of buildings according to their relative importance, in the need for the subordination of an artist's personality to the architectural character of a town, and in the assimilation of every new building to the existing environment, he is forced by the spirit of Madison Avenue to be a Form-Giver; to be a leader of fashion when he still confesses that he does not know the right direction to take.

His indecision is exacerbated by the fact that, though temperamentally a disciple of Le Corbusier, he received his graduate training at Harvard University under Walter Gropius, and is now reacting against the uncongenial discipline of the Bauhaus in the same way that Gropius himself reacted half a century earlier against the academic system where he himself was taught. The result has been a period of transition, similar to that which many painters have gone through, often quite late in life; but which is, I think, rare in the architectural profession, where most of the great innovators have had a coherent set of principles before reaching the age of forty-one.

To judge from his latest project, this painful metamorphosis from Bauhausian chrysalis to Le Corbusian butterfly is now drawing to a close, since this nondenominational chapel for the Tuskegee Institute, Alabama, is unashamedly inspired by Le Corbusier's chapel at Ronchamp. Critics may dismiss this new project out of hand as a plagiarism, but if one admires Ronchamp sincerely, one presumably has good justification in regarding it as paradigm for ecclesiastical buildings in the present age. Architects, unlike painters and sculptors, are only really of significance when they adopt consistent forms of general validity for their generation, and it seems incredible that so much lip-



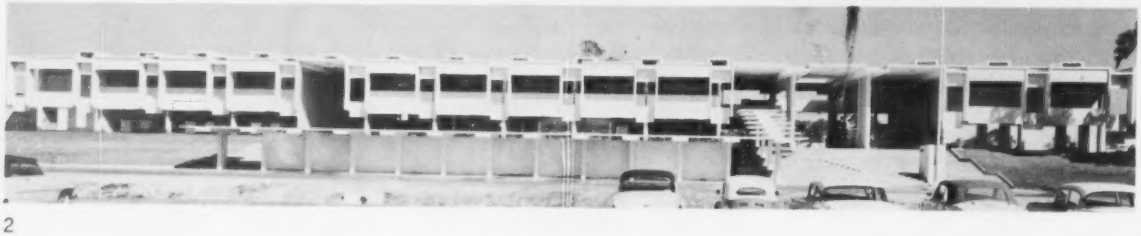
The 1951 "cocoon" summer cottage by Twitchell & Rudolph (below) *is one of Rudolph's earliest designs; the U.S. Embassy in Jordan* (above) *and the Episcopal Church in Sarasota, Florida* (top) *were designed in 1956.*

Photo: Ezra Stoller

Typical of Rudolph's recent work is the Wellesley Arts Center **(1)**, *addition to Sarasota High School* **(2)**, *and designs for a garage in New Haven* **(3)** *and for a nondenominational chapel at the Tuskegee Institute* **(4)**.

1

Photos: Joseph W. Molitor



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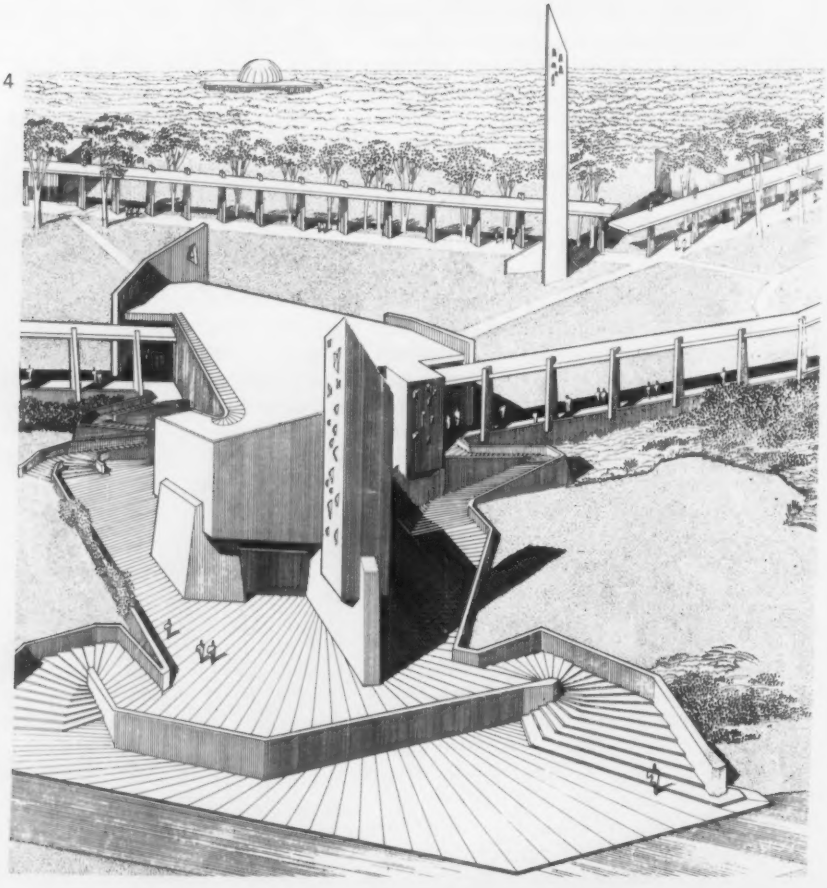


service should be paid to Le Corbusier, and so much adulation lavished on Ronchamp, without any of his admirers having so far had the perspicacity or humility to give practical expression to their flattery by imitating his most distinctive design. Paul Rudolph's fundamental artistic integrity is shown by his courage in carrying his admiration to its logical conclusion, just as his talent is shown by the many radical differences between Ronchamp and his own scheme; differences that distinguish one from the other as Canterbury Cathedral is distinguishable from the cathedral at Sens.

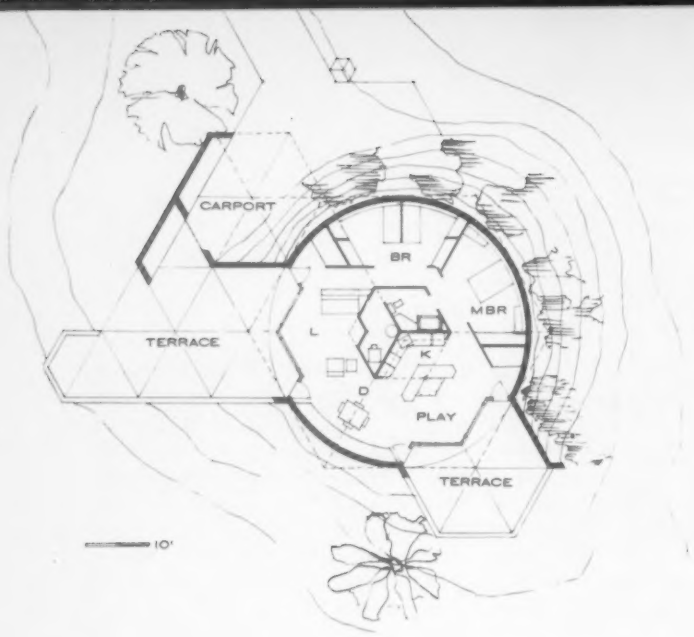
The design of a nondenominational chapel is now becoming one of the classic problems in modern American architecture, and might seem at first sight to be one of peculiar delicacy, since it presumably requires a vigorous expression of the ideals of true religious faith without at the same time favoring, by historical or liturgical allusions, any one faith in particular. It is, however, the perfect opportunity for an architect to design in any way he likes, since he can assume that the more bafflingly enigmatic his composition, the more likely will each observer interpret it in a way that will satisfy his religious beliefs. It is not likely, therefore, that Paul Rudolph was subjected to any cramping restrictions in establishing the scheme that he has now evolved.

The announcement which describes it claims that "like the Tuskegee Institute's first structures, the chapel will be a sanctuary in the original sense of the word—an inviolable asylum, surrounded by ramparts that recall a medieval fortification. And like Tuskegee's first structures, the new chapel will represent a shining achievement to an institute built by the contributions of men and women of very small means but of very great faith." These two sentences are clearly not very helpful guides to a critical architectural assessment, since the first merely reminds the reader that the history of architecture was never taught at Harvard in Gropius' heyday, whilst the second has apparently strayed from the fund-raising brochure. Yet the oblique reference to Tuskegee's first structures is included very deliberately as a cover for the fact that the new building is not designed to harmonize with the other buildings on the campus, but that, on the contrary, it offends against the one principle by which Rudolph has formerly claimed to set particular store. When Tuskegee Institute was created in 1881, its founder insisted that every building was to be of brick, and that the bricks were to be hand-made by the students themselves. But so thoroughly has Paul Rudolph now absorbed the Le Corbusier aesthetic, that he has rejected all forms of brickwork (a material which was good enough for the new buildings he designed to harmonize with Wellesley College two or three years ago) in favor of rough-faced concrete, as used in all Le Corbusier's most recent European works. It seems doubtful if, even with this aid, the building will remind the inhabitants of Alabama of medieval fortifications; but the analogy is opportune in view of the fact that one of the articles on Le Corbusier's new Dominican priory was entitled "Fortress of Faith."

It is possible that Paul Rudolph really is so sure and important a designer that his projects merit publicity in the technical magazines even before the first bulldozer has bitten into the site. At any rate, he seems to have found the exact dosage of abstract scuplture and technical efficiency (the shape of the interior of the chapel was apparently "determined by acoustic considerations") that best corresponds to current American tastes. But one may wonder to what extent he is qualified to set the standards for the profession at large, or to fulfill the role of leadership that the technical periodicals are already forcing him to accept.

When asked, for example, whether he believed in encouraging his students to "explore" in the way he does it himself, or whether, on the contrary, he expected that in due course he would have worked out some coherent doctrine which he could then teach as authoritatively as Walter Gropius, he replied evasively that, as far as he was concerned, the two professions of teacher and architect were entirely distinct. Now clearly, a man of Paul Rudolph's caliber does not profess doctrines he does not practice, so his statement can only mean that at the present moment he professes no doctrine at all, that he is trying simply to be as tolerant and as helpful as he can to those who come to him to learn the processes of architectural creation. Such a policy may well encourage the personal expression of individual geniuses like himself. But if a student is not a genius, it is not likely that he will learn to produce any architecture at all, and the most pressing architectural problem facing North America today, as Paul Rudolph freely admits, is the chaotic individualism that mediocrity imposes on the aspect of our streets. Walter Gropius used to assert that architectural mediocrity was due, at the beginning of the century, to the academy schools, which were obsessed by that "rare biological sport," the commanding genius; yet despite the much-advertised influence of the Bauhaus (where apparently "many of the most famous architects and designers of today were students," according to the inaugural address of the new professor of architecture at London University), it does not seem as if the schools are any nearer solution of this problem. It can only be solved if teachers set examples that others could use as models.

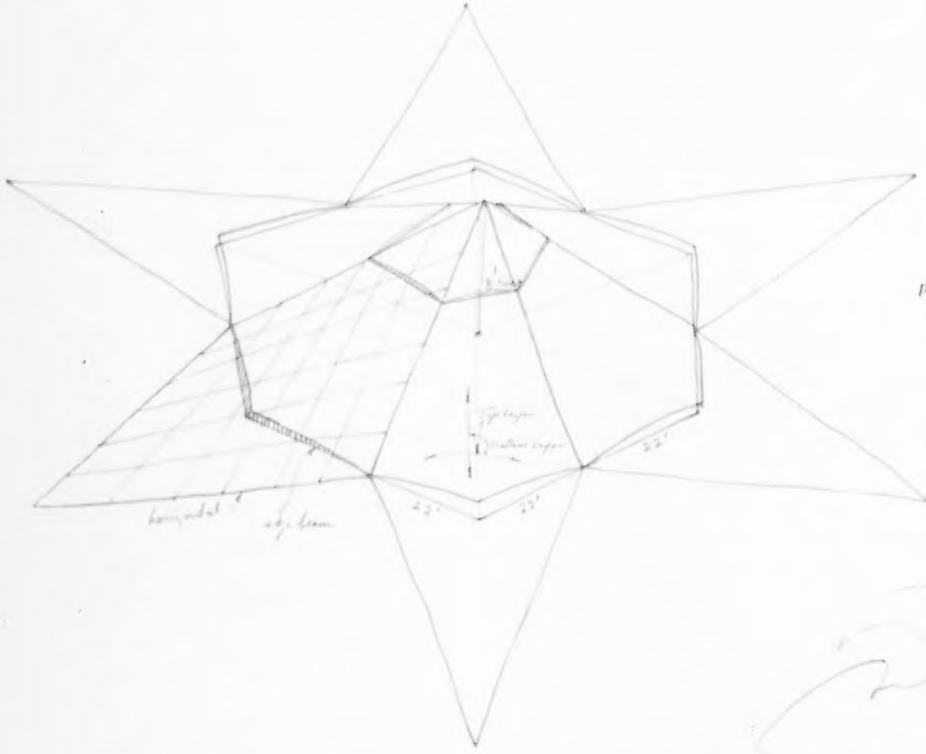
The fact is that the creative methods of Le Corbusier and Walter Gropius are irreconcilable, despite Sigfried Giedion's attempt to give them a superficial unity in his well-known book. Le Corbusier, who believes in the unfettered genius of the plastic artist, understood long ago that his architecture, like that of Frank Lloyd Wright, is something personal and cannot be taught by traditional academic systems; nor has he ever attempted to do so. Walter Gropius, on the other hand, has always insisted that architecture is simply the art of building, which can and must be systematically taught, because it is contingent on the co-ordinated teamwork of a band of collaborators, whose co-operation symbolizes the co-operative organism we call society. It may be that Paul Rudolph, with his varied background, will find a way of resolving the antagonism of these two philosophies as regards methods of training. But he is more likely, in pursuing the dictates of his Muse, to be forced into accepting Le Corbusier's and Wright's contempt for all academic systems as a means of training those followers who wish to be initiated into the secrets of his creative skill.



HP ROOFS

Hyperbolic paraboloid roofs, requiring a minimum amount of material and labor, can be used to span a variety of floor plans. Five different HP schemes—all for wood construction—are shown.

Canadian Architect James W. Strutt, of Ottawa, has applied the idea of "increased weight/strength-efficiency ratio in materials"—which in the work of Buckminster Fuller resulted in the geodesic dome and the octet truss—to the hyperbolic paraboloid to produce a more varied and less



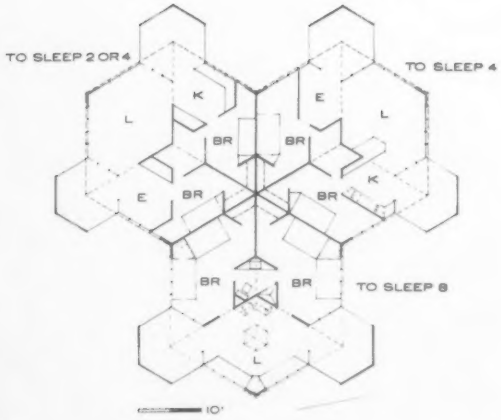
Study of HP roof for a house designed around a central utility core. Arrangement of HP panels easily accommodates penetration of masonry core through roof

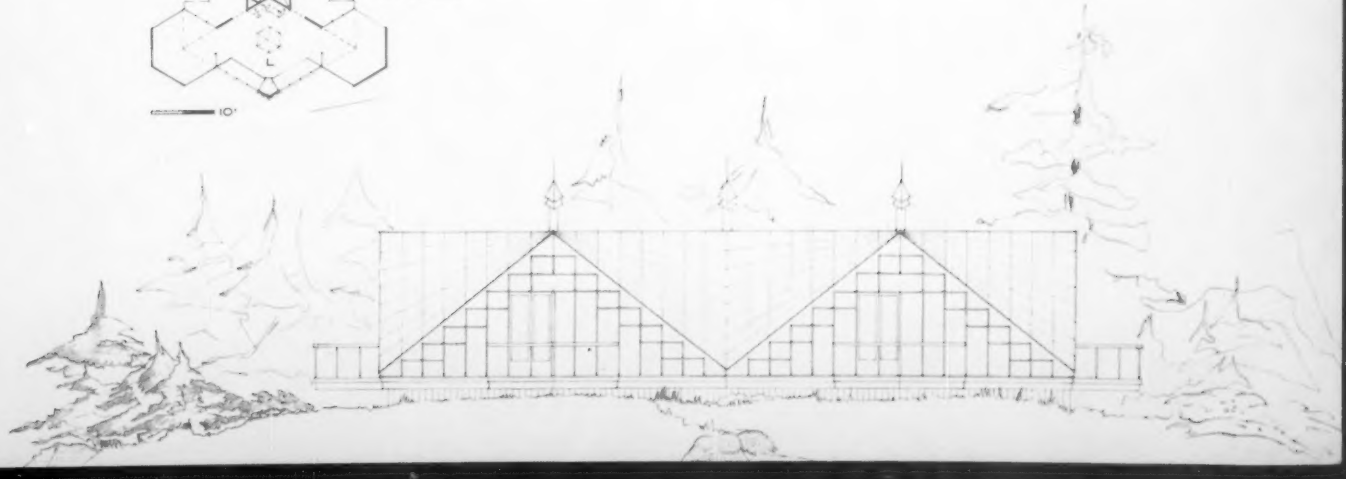
FOR HOUSES

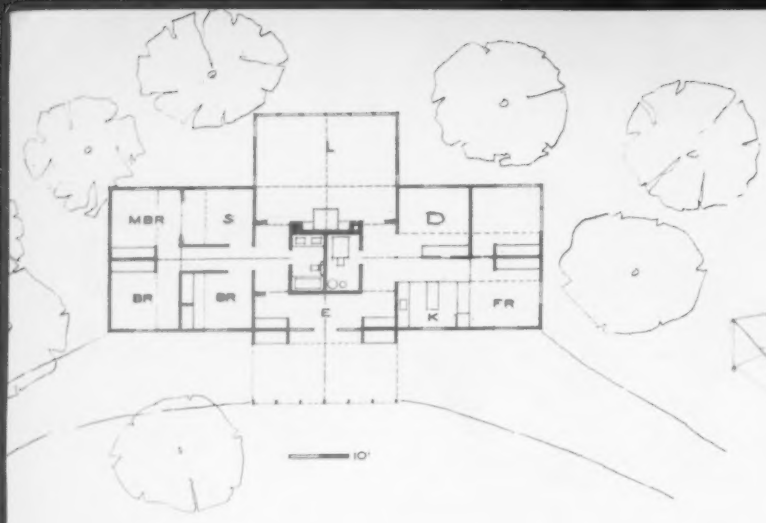
sophisticated roof-construction method. Using only standard materials and methods, he has not only reduced the amount of material required for a given span, but also the amount of labor needed to place it. As the geometry of the HP became familiar, along with the forces within its form, combinations of HP's were evolved so that various applications could be made. In more than twelve of his house designs—four examples are illustrated by sketches—the discipline of the HP's basic geometry, which tends to symmetry and/or cell-like construction, was the fundamental consideration governing the desirability of its use. The majority of Strutt's applications have been with laminated wood; spans under 30 ft have proved to be most economical, since only two laminations were necessary. In all cases, the cost, including rigid insulation and roofing was below $1.00 per sq ft—a self-imposed limit in order to compete with normal joist construction.

On the West Coast, Architect Paul Hayden Kirk has used HP's for the roof of a wood-products research home at Bellevue, Washington (SELECTED DETAIL). Of special interest are: the method by which the roof panels are given their doubly-curved form; the simplicity of the roof-drainage system afforded by the use of HP's; and the penetration of one panel by the chimney. This home was a project of the Basic Materials Research and Design Program organized by *Living for Young Homemakers* in co-operation with the Weyerhaeuser Company of St. Paul, Minn., and the Anderson Corp. of Bayport, Minn.

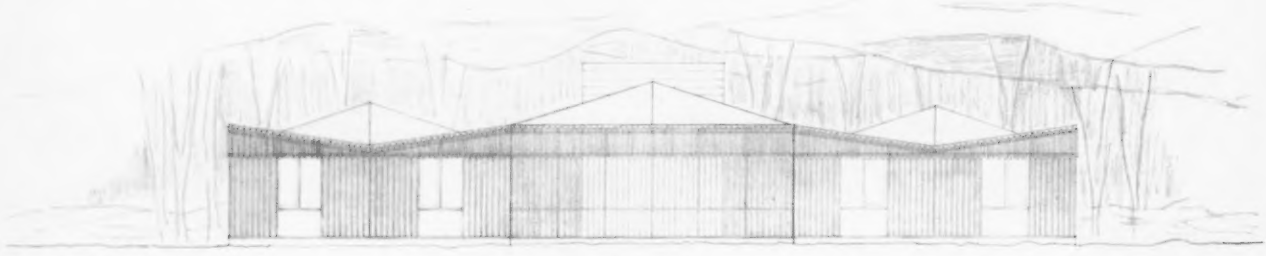
Three-unit cluster of chalets designed for the Laurentians. Shell construction: ⅞" white pine, two layers, glued and nailed. (Sketches by the architect.)

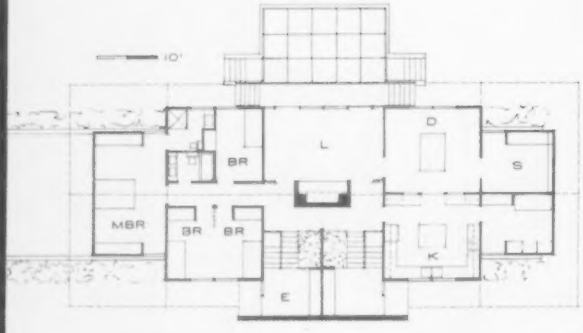




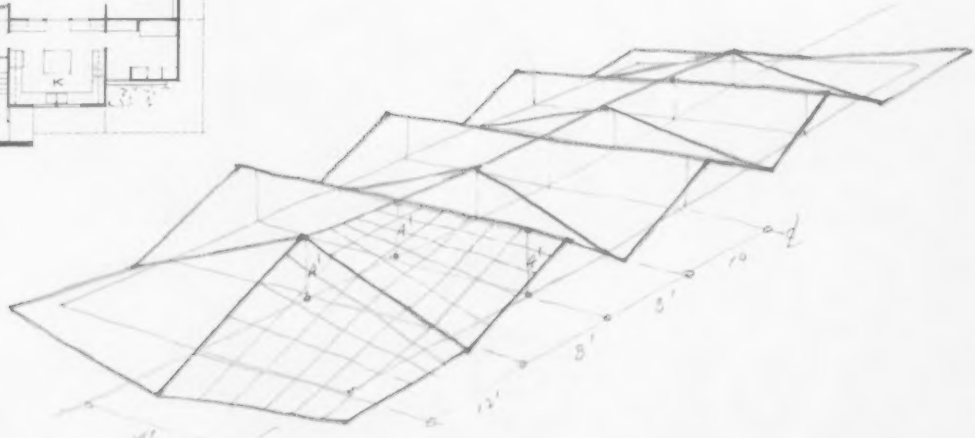


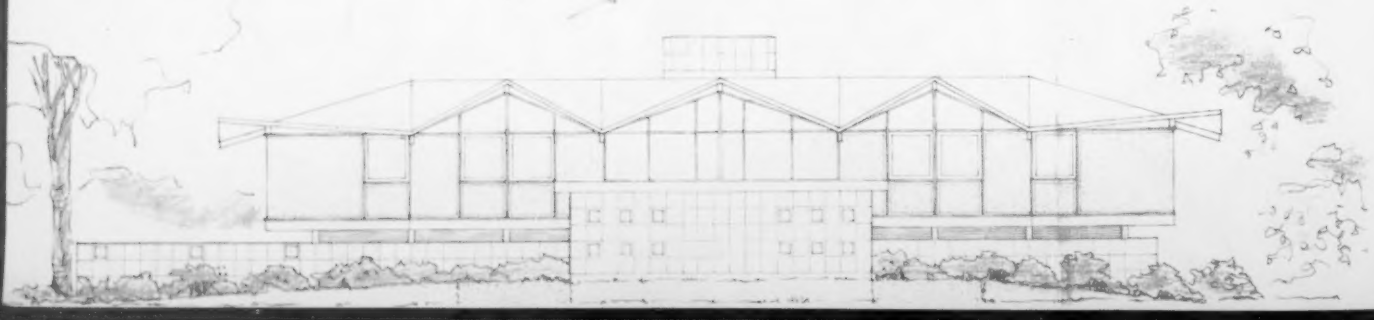
Emphasis on the longitudinal axis offers an excellent opportunity for use of HP roofs. Additional width of central roof element gives dominance to the facade.

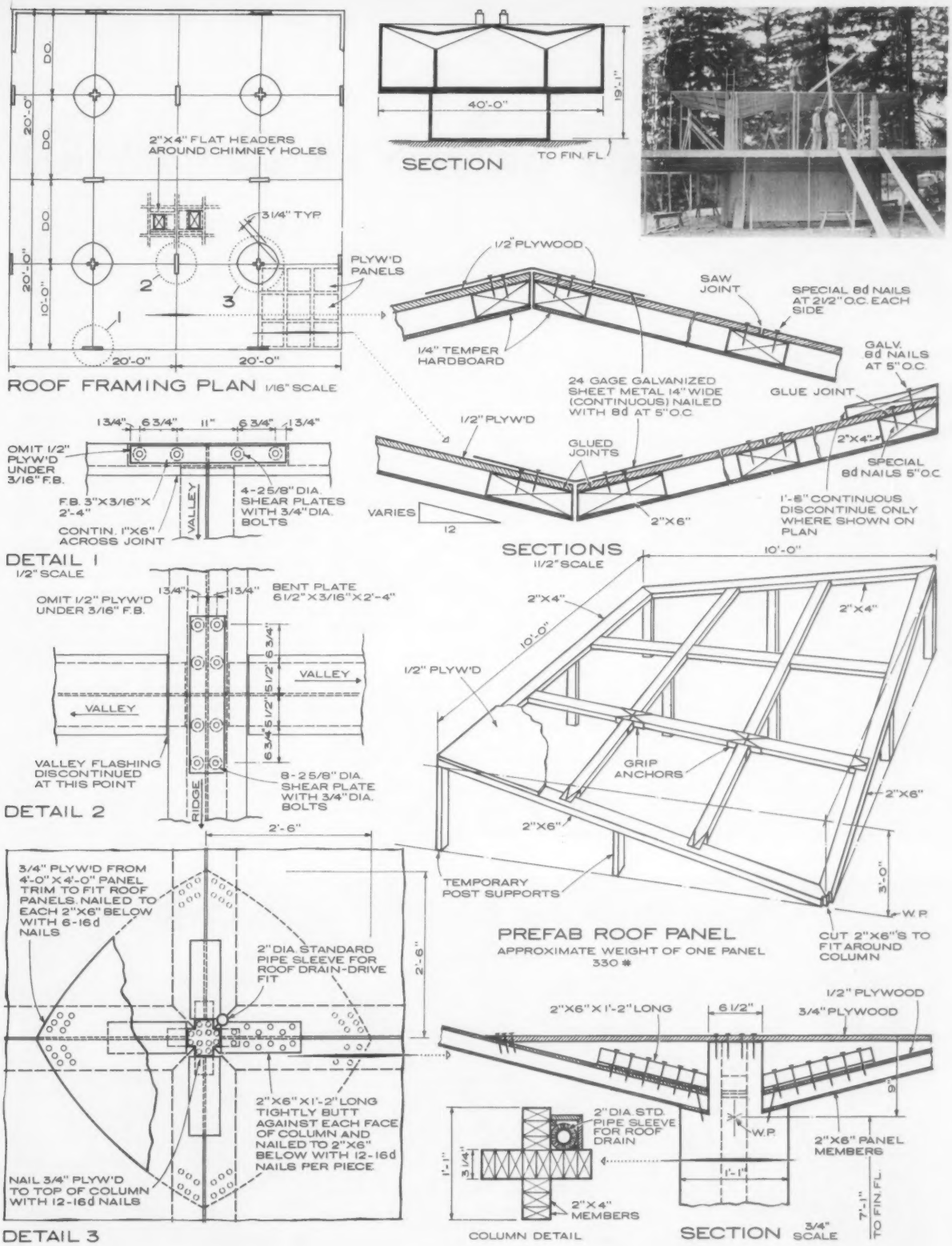




HP roofs are especially adaptable to formal, symmetrical plans. Identical roof panels flank wings of this residence. Shell construction: two layers, 5/8" B.C. cedar, glued and nailed.







WOOD PRODUCTS RESEARCH HOUSE: Bellevue, Washington PAUL HAYDEN KIRK, Architect	SELECTED DETAIL HP ROOF PANELS

COLD-GLAZED CEMENTS REVIEWED

BY ALBERT SWERDLOW

An earlier article on cold-glazed wall surfacings, published in P/A, called for industry-wide performance standards. This article directs attention to the great changes in the field and concludes that standardization is not the answer. The author is a professional engineer and Sales Director of Cement Enamel Development, Inc., Detroit, Mich. (Further discussion appears in this month's SPECIFICATIONS CLINIC.)

In an article entitled "A Plea for Standardization" (DECEMBER 1960 P/A), Harold J. Rosen cited the vitreous or cold-glazed wall surfacing field as an example of an industry in need of standardization. He further suggested that the various manufacturers get together and establish minimum performance test requirements. In spite of its apparent simplicity, the effectiveness of the approach outlined is open to serious question and might lead, not to an improvement, but to a worsening of existing confusion.

It is important to recognize that some fields require specialized specifications. Many industries produce products of different grades—face brick, hardware, lumber, and concrete, to name a few. In such cases, an urgent need for precise, definitive specifications exists. The vitreous or cold-glazed wall surfacing field furnishes an excellent opportunity to examine such a need.

In the OCTOBER 1956 P/A, there appeared a very clear, technical analysis of the cold-glazed wall surfacing field as it existed at that time. This article, written by Guy G. Rothenstein and entitled "Cold-Glazed Cement Finishes," described this type of coating as consisting of "portland cement, graded silicas, mineral pigments and special organic hardeners which create a surface glaze under the physical action of the application process." Rothenstein's article also contained a table of the properties of cold-glazed cement finishes which indicated that these were similar to a dense portland-cement finish.

Since 1956, when the Rothenstein article was published, the cold-glazed cement finish field has greatly changed and has devolved into three distinctly different categories.

True portland-cement-based surfacing. This type of surfacing is described in Rothenstein's article. An inherent glaze is obtained through the crystallization of cement molecules in a manner similar to that obtained occasionally in steel-troweled concrete surfaces or when laitance flows out of a concrete form and dries to a dense, hard, shiny finish. This surfacing requires a carefully controlled application procedure to insure proper formation of the surface glaze, followed by water-curing to insure proper hardness and density. The final seal coat in this process acts to protect the surfacing while curing takes place. As Rothenstein indicated, this multistage process, which has already had over a quarter of a century of satisfactory performance in installations on this continent, requires specially trained mechanics.

Plastic-based surfacing with portland-cement filler. This type of finish has had wide promotion in the past five years as a low-cost, cold-glazed wall surfacing. Similar in appearance to the true cement-based surfacing outlined above, it has a completely different basic composition and a simpler application procedure. This surfacing is based on formulations which combine cement with plastic additives such as polyvinylacetate emulsions, with the plastic acting as glue and holding

CHARACTERISTICS OF COLD-GLAZED CEMENT FINISHES

TYPE	CHARACTERISTICS	REMARKS
True cement base	Similar to dense concrete finish Natural gloss from crystallized cement molecules Requires multistage application procedure and water curing Uses only mineral oxide colors	30 years experience in U.S.A. and Canada Non-vapor-barrier Noncombustible Light-stable
Plastic-base with cement filler	Obtains resistance and gloss from seal coat Plastic component in base softens under water or chemical action Seal coat determines test properties Simplified application due to chemical bond of plastic component	Approximately five years experience in U.S.A. and Canada Possible vapor-barrier Seal coat may be combustible and have low light-stability
Plastic-base without cement filler	Under proper polymerization creates very hard, dense, chemical-resistant surfacing Usually applied as a thin, pigmented or multicolor film over smooth or cement-filled backing Application procedure similar to that of ordinary paint	Approximately five years experience in U.S.A. and Canada Continuous coating creates vapor-barrier Will burn and yield dense smoke unless very thin film is applied to noncombustible backing

together the uncured or partially cured cement filler. No water curing is possible, since water softens the glue and destroys the coating. Surface hardness, as well as chemical resistance, are generally obtained through the use of a hard, air-dried or thermal-setting plastic sealer. Light-stability, combustibility, and vapor-barrier characteristics depend on composition and application of seal coat.

Plastic surfacing without cement filler. A new group of plastic compositions without cement fillers is presently on the market, attempting to gain acceptance where cold-glazed finishes are specified. Most of these are of the polyester, vinyl, epoxy, or polyurethane type. The application consists of a thin, pigmented film. Over rough surfaces, a plastic-based block filler is usually used to fill voids. This type of material is being applied by local painting contractors at costs approaching those of ordinary paint, and it generally has good adhesion to dry porous backings due to a strong chemical "key."

The above groupings cannot be considered similar or equal to each other, despite their ability to fulfill chemical and mechanical test requirements. Each category is distinctly different from the others. The true cement-based materials have the best proven record of satisfactory service through the years, as outlined in Rothenstein's article, but due to the multistage application process—involving more labor than do surfacings with plastic components—they cannot compete in price where plastic-based finishes are accepted.

In weighing the relative merits of the three groups, chemical and mechanical tests cannot furnish an effective guide. Samples prepared under controlled laboratory conditions yield results which cannot be duplicated in the field. A surfacing which, when applied in a coating of 20-mils thickness on a job, burns and yields a dense smoke, may be submitted for testing in a 10-mil thickness and yields good fire-resistance performance. The effect of weathering and ultraviolet rays on a sample varies with the tonal value of the pigmentation and the thickness of the seal coat. The effect of vapor-barrier characteristics cannot be effectively measured on a small sample.

These are only a few of the typical problems involved in using test data as a guide to performance characteristics. A thin polyester or epoxy coating applied to a small sample may show results in some chemical and mechanical tests which would be superior to that of the true cement-based, cold glazed wall surfacings, yet this would surely not be a true indication of relative value on the walls of a project. What is truly needed is specifications assistance.

How then can a specifications writer specify a cold-glazed surfacing material and obtain satisfactory results? First, he must have a clear outline of which of the above processes he wants to specify, based on his personal investigation of their relative merits. He must be prepared to back up his own judgment and exclude materials which he feels are not equal to those he is specifying.

Two types of specifications can be of assistance in eliminating unauthorized substitutions.

Allowance specification. Under this specification, the general contractor is directed to allow, in the base bid, a unit price per sq ft for vitreous wall surfacing as indicated on plans and specifications. The same method is currently in extensive use in specifications covering face brick and other construction items where a wide variation in quality and price is encountered.

Detailed specification with "deduct" alternates. Under this specification, the composition of the surfacing and its application procedure is outlined in detail. All substitute coating must be bid under a "deduct" alternate. This permits the architect to make his selection on the basis not only of cost, but also of quality, and insures that any saving obtained through the use of a lesser-quality material accrues to the owner.

GENERAL APPLICATION PROCEDURES

TYPE	DESCRIPTION OF PROCESS
True cement base	Bond coat fills voids and neutralizes suction Special silica sand sprayed in for added mechanical bond Base color coat of cement and mineral oxide colors applied by spray Color pattern applied; inherent gloss visible at this stage Clear water spray applied to assist curing and crystallization Water-emulsion hardener applied, followed by protective seal coat
Plastic-base with cement filler	Color coat applied by brush or spray to fill voids and act as base coat Color pattern applied—no gloss Seal coat creates glossy finish
Plastic-base without cement filler	Plastic-base color coat applied by brush or spray Spotting pattern applied using same material

Sound Systems

BY DAVID L. KLEPPER

The ideal acoustical solution for an enclosed assembly area is one so designed that additional electronic amplification is unnecessary. There are, however, certain conditions where sound-amplification systems, properly designed, can perform the valuable functions of reinforcing natural sound, amplifying in large spaces, or controlling reverberation. Author is an associate of Bolt, Beranek & Newman, Acoustical Consultants, Cambridge, Mass.

Acoustical engineers have often found that the first step toward improving hearing conditions, where complaints about "poor acoustics" prevail, is simply to shut off an inadequate public-address system. If this is done during the minister's sermon or a talk by the high school principal, the effect can be dramatic. Instead of complaints about speech not being heard, the acoustical engineer will receive congratulations on the miracle he has accomplished in improving speech intelligibility by his mere presence.

Assuming that a church or auditorium is large enough to require a sound-amplification system, it is obvious that the design of such a system must be carefully coordinated with the basic room-acoustics design. In few cases is this actually done.

The Afterthought Solution

The most common type of sound system used today is, unfortunately, perhaps the worst. In such a case, there is no money available in the initial budget for a sound-amplification system. The problem is "shelved" until several years after the building is finished; then, in response to numerous requests to "fix up" the acoustics so that people can hear the lectures, the play, or the sermons, the owner purchases a sound-amplification system from a local dealer.

Often a decision between several contractors' proposals is a matter of price alone, and the system is considered successful if it can be heard *loudly*, without feedback, regardless of whether it is actually improving speech intelligibility for the listeners. Architects are even more distressed by the fact that such systems disfigure the completed building, with exposed conduit and artificial wood-grained loudspeaker boxes (with an eighth-note or treble clef on the loudspeaker grille), providing unwanted decoration for otherwise cleanly designed wall and ceiling surfaces.

The Poorly Designed System

Yet even this after-the-fact "drugstore" approach to sound-amplification system design may give better results than a system that is improperly designed and specified in the original contract.

Do architectural designers really consider the acoustical requirements of a sound system? Unfortunately, more often than not, their only criterion is that the sound system not interfere with the basic architectural design of the space. Once the designer has found a good place to hide the loudspeakers (usually behind a return-air grille), he then turns the problem over to the electrical engineer, with the hope that the system installed will "work."

The electrical engineer is often not in a position to design an acoustically correct sound-amplification system, assuming that one is possible within the limitations already established by the placement of loudspeakers. It is much easier to call on the nearest manufacturer's representative. Once this individual performs "free" engineering services, he is naturally reluctant to have a competing sound-system contractor obtain the job. He may therefore be forced to write a deliberately vague specification, in such a manner as to discourage any competitor from bidding on it.

Let us look at portions of one such specification: this from the office of one of the largest and finest electrical and mechanical engineers in this country, prepared for an important project designed by one of our best architects. The first excerpt is from the paragraph on amplifiers:

"The frequency response shall be 20-20,000 cps ±1.5 db. The tube complement shall be one #7025, one #12 AU7, two #6146, and one #12 AT7, two #0 C3, and one #5R4GyB."

This amplifier is tied down pretty closely, although there are certainly other manufacturers' amplifiers with different tube complements that will meet the performance portion of the specification. But turning to what the specification says about loudspeakers (the most important components of any system):

"All loudspeakers shall be of eight (8) inch size, except where space requirements require smaller loudspeakers to be used."

The power-amplifier specification was quoted only in part, the loudspeaker specification in full! This kind of inconsistency is often found in a sound-system specification.

Conditions in the industry being what they are today, it is not surprising that so few sound-amplification system "forms" really follow the "functions" for which they are designed. In spite of this, however, a few sound-system contractors are able to convince architects, electrical engineers, and building owners that price is not everything and that visual design and

Low-frequency loudspeakers are hidden behind grille cloth above and behind multicellular horn cluster in Jerusalem Congress Hall.

acoustical excellence are not necessarily incompatible.

The Ideal: Co-ordinated Design

A final approach is, of course, the ideal one where an architect—together with his consulting electrical and acoustical engineers—understands the requirements of good sound-system design and sets out to design a system that will co-ordinate the architectural, acoustical, and electrical requirements, not forgetting the ever-present problem of the budget. This can be accomplished only when co-ordination starts at the very beginning and continues throughout the project. It is the positive approach to sound-system and room-acoustics design—possible from this type of collaboration—that is discussed in the remainder of this article.

Forgetting for the moment the playback of recorded and broadcast material, let us summarize the functions a sound-amplification system may serve in supplementing room-acoustics design.

1 It can reinforce the natural sound of live speech or music when the sound source is unusually weak, in a listening space where a normal-voiced speaker can be heard without amplification.

2 It can place amplified sound in spaces too large to provide good hearing conditions by natural sound; for example, exhibition halls, coliseums, etc.

3 It can minimize room reverberation, for example, in listening spaces possessing inherently good "music acoustics" but too reverberant for speech.

4 It can provide artificial reverberation in spaces too dead for satisfactory music listening.

In a sense, any of these requirements may appear to be an admission that the acoustical engineer has not accomplished the optimum job in the design of the building. However, there are times when conflicting uses of a space, the size and occupancy required, space and budget requirements, or even an architect's aesthetic conception, force the acoustical engineer to consider the use of sound-amplification systems to enable people to hear well.

This article discusses the engineering

Auditorium of St. Louis Museum has loudspeaker system hidden by grille of minimum size necessary to allow full coverage from loudspeakers (above). *Loudspeaker grille is integrated with room design at United Nations Assembly Hall; 10-ft shield hides central loudspeaker system covering central hall area* (below). *Sloped panel, just forward of ceiling panel and directly over platform of Berlin Congress Hall, is constructed of sound-transparent metal. In this way, loudspeaker grille is scarcely noticeable* (acrosspage). *Central loudspeaker systems in Berlin Congress Hall employ line-source or column speakers, while other halls illustrated use horn-type speakers.*

of sound systems designed to fulfill three of the above four requirements. (The subject of sound systems designed to produce artificial reverberation is sufficiently "special" to require separate discussion.)

I: Reinforcing Natural Sound

The longitudinal section of an auditorium designed to have inherently fine natural acoustics, particularly for speech activities, is shown **(1)**. Ceiling sound-reflecting surfaces are arranged to distribute reflected-sound energy evenly throughout the audience listening area. This reflected sound arrives at the listener's ear soon after the direct sound from the stage and reinforces it. The seats, it may be assumed, are fully upholstered, so that use of the auditorium with reduced occupancy does not result in a drastic increase in the reverberation time.

To handle the situation of a weak-voiced speaker lecturing to an audience, the sound-amplification system must increase the loudness of the lecturer's voice sufficiently for him to be intelligibly understood. However, the best results are obtained when the audience hears the sound not merely louder and clearer, but identifies the signal with the speaker, not with the loudspeakers.

Only one type of amplification system has consistently proven its ability to meet these requirements economically in a typical auditorium such as the one illustrated. This is sometimes known as the "central" type loudspeaker system, which is comprised of a single loudspeaker cluster over the center of the proscenium arch.

Let us review the choice of location. The sound must appear to come from the person talking. Fortunately, our ears are at the sides of our heads, and binaural localization appears to work better in a horizontal plane than in the vertical plane. Therefore, a loudspeaker location directly above the live sound source can produce sound energy appearing to come from the live sound source.

The ratio of live sound to amplified sound can vary somewhat throughout the auditorium, but it is important that both the live and the amplified sound arrive at the listener's ear at approximately the same time, if they are to add to, rather than diminish, speech intelligibility. The central over-the-proscenium location can maintain approximately the same path length between amplified and live sound throughout this typical auditorium.

The above refers to the reinforcement of one weak-voiced speaker. Of course, if reinforcement of many voices is required —or many sound sources located at various positions on the stage—as for a play, stereophonic or multiple-speaker systems would be required. But since we are discussing a reinforcement amplification system in an auditorium having good natural acoustics, it is safe to assume that a stereo system is unnecessary. If the system is to be used for playback of recorded material as well, additional stereophonic speakers should be considered. However, assuming the normal speaking position is at the center of the stage, these should be in addition to, not replacements for, the center loudspeaker cluster.

Adequate Coverage

Since the loudspeaker and microphone must be in close proximity to one another, it is obvious that they must be directional units. The loudspeaker equipment should be carefully chosen to provide the most even coverage possible over the entire audience seating area, while minimizing the sound energy directed at the microphone position and at any wall or ceiling surface that may reflect energy back to the stage. Figure-eight or cardioid microphones, depending on the orientation, are generally most satisfactory for use with central-type sound-amplification systems.

Currently, most central-system designs employ theater-type horn loudspeaker systems, using either multicellular or radial "direct expansion" high-frequency horns with front-loaded, large, low-frequency horns. Column loudspeakers may be substituted for directional horn loudspeakers in some cases.

Regardless of the particular configuration of loudspeakers chosen, it is important that a coverage pattern be assigned to the

loudspeakers or to the loudspeaker cluster based on the realistic appraisal of the characteristics of the loudspeaker. This coverage pattern should assure that all listeners can receive the signal with smooth frequency response at a level sufficient to assure an increase in speech intelligibility.

Often, even though it would be possible to choose one horn loudspeaker to provide coverage for the entire seating area in the speech frequency range, it is advisable to divide the floor plan into two or three seating areas and assign two or three loudspeakers, rather than one, to provide coverage. The input signal to the loudspeakers directed to cover the forward seating area may be reduced in level, maintaining a uniformity of level not possible with one loudspeaker.

The acoustical importance of large size for central loudspeaker systems, either "line-source" or horn-type, cannot be overemphasized. A loudspeaker that has dimensions as small as, or smaller than, the wave length of sound energy it is transmitting acts as a "point-source" radiating sound in all directions. For adequate improvement of speech intelligibility in most churches and auditoriums, it is important that the directional characteristics of sound be controlled above 500 cps. Since the wave length of sound energy at this frequency is approximately 2 ft, the size requirements for central loudspeaker clusters include a front radiating surface of 3′ x 5′ or 5′ x 8′. Such loudspeaker systems can be integrated into the basic architectural design of the space if the problem is faced by the architect during the initial design stage.

II: Amplifying in Large Spaces

There appears to be some disagreement as to what constitutes a space large enough to require the sound-amplification system to supplant, rather than merely to reinforce, natural sound. Dr. Harry F. Olson has described an acousto-electronic 300-seat auditorium at the RCA laboratory in which a sound-absorbing ceiling eliminates any natural reinforcement of direct sound energy by reflected sound energy; such reinforcement is simulated by a distributed loudspeaker system employing three different time delays. The design philosophy behind this auditorium is the opposite of the usual approach in assuring good hearing conditions in a small, 300-seat auditorium. Nevertheless, it is an engineered solution and is, therefore, one that performs well. (See discussion of this auditorium, NOVEMBER 1959 P/A.)

Another example is the Miami Beach Exhibition Hall, the South's largest exhibition hall. The sound-amplification systems included in it are planned for a wide variety of activities and are, consequently, extremely flexible. The exhibition hall itself has a distributed loudspeaker system in which no attempt is made to introduce naturalness of source direction. Instead, the system is designed to work with a sound source location anywhere in the exhibition hall.

Two primary room-acoustics factors governed the selection of a distributed loudspeaker system for the exhibition hall area. First, extreme flexibility of microphone pickup location was required. The distributed loudspeaker system allows coverage to be eliminated from any particular area. A second basic requirement forcing the use of a distributed loudspeaker system in this space was the possibility of a division of the exhibition hall into six smaller areas (or combinations of the six smaller areas).

If the movable partitions dividing these areas could have sufficient mass to provide adequate sound isolation between them, individual central-type loudspeaker systems might have been a possibility for each area. Since only the lightest movable partitions were practical, however, low-level sound reinforcement was required to minimize acoustical interference between areas. Adequate sound isolation is possible in the exhibition hall, however, by avoiding the use of adjacent areas for simultaneous amplified or other potentially disturbing activities. It is possible, for example, to use the two left-side areas for one lecture or other speech activity, two right-side areas for another, and the central area as exhibition space with only background music (at a low level) coming over the loudspeakers. The flexibility has been built into the sound system to allow complete flexibility in the use of the space at any future date, should a scheduled event require such flexibility and should heavier partitions be purchased.

To provide this flexibility, an unusual control console forms the heart of the Miami Beach Exhibition Hall sound system **(2)**. It actually includes six subconsoles, an area mixing board that combines the subconsoles in any desired combination. A virtue of the board is that it provides a visual indication of which areas are being used by a single function, and, therefore, which subcontrol consoles are tied together. In addition to the six area subcontrol consoles, a seventh group of controls regulates sound amplification in the corridors, the lobby, and the small committee room. These small committee rooms have key switches allowing the loudspeakers to be shut off when announcements or background music are not wanted.

The loudspeakers are located on approximately 27-ft centers, 20 ft off the floor in the lower side-bay areas and 35 ft off the floor in the main portion of the exhibition hall. In order to assure uniform coverage when risers are installed in the exhibition hall, loudspeakers having 90-degree coverage were required.

III: Controlling Reverberation

A typical example of a sound system installed in a space having a high reverberation time is that used for the Air Force Academy Chapel. The interior finish is hard, to provide the high reverberation time suitable for liturgical music. Therefore, the bulk of the reverberation control must be accomplished by the sound-amplification system **(3)**.

Reduction of room reverberation is accomplished when the loudspeaker system radiates energy on the sound-absorbing audience with minimum energy radiated on sound-reflecting surfaces. A straightforward method of reverberation control in a reverberant building is to use many loudspeakers located close to the listening audience and operated at a low level; best results with such a distributed loudspeaker system are obtained when the loudspeakers are mounted with their axes vertical and are spaced close enough together so that the coverage patterns overlap. A listener will then always hear sound originating from the nearest loudspeaker, with sound from loudspeakers located farther away attenuated by distance and by the directional characteristic of the loudspeaker. Listeners located equidistant to two loudspeakers hear the sound from both at the same time, minimizing interference effects destructive to speech intelligibility.

It is important that the coverage pattern of the loudspeakers be measured on a realistic basis. For example, if a loudspeaker is truly a 90-degree loudspeaker, for speech-reinforcement use, then 45-degree off-axis response should not vary significantly from the on-axis response.

Minimizing room reverberation by use

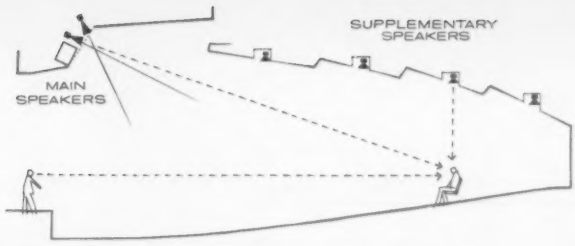
of a distributed loudspeaker system is only one method, of course. In many churches, this is ruled out by architectural considerations, since the architect may not want low lanterns hanging from a high ceiling. In addition, a distributed loudspeaker system is often not applicable because the acoustical engineer desires the amplification system to sound natural, with speech appearing to originate from the actual source location. The high reverberation time in such a space requires that any *central-type* loudspeaker use directional components if the sound is truly to be concentrated on the sound-absorbing congregation rather than being sprayed over the hard, sound-reflecting walls of the ceiling.

A longitudinal section of Christ Episcopal Church, Greenwich, Connecticut, is shown **(4)**. The church is sufficiently narrow to permit the use of a single central loudspeaker cluster for both pulpit and lectern reinforcement without great loss of directional realism. The geometry of the building dictated the use of two loudspeakers, one having a minimum of 90-degree coverage for the front area and transepts, and one having a minimum of 60-degree coverage and a maximum of 80-degree (to minimize reflections off the side walls and upper transept walls) for coverage of the rear of the nave and the balcony. The purpose of this system was not actually to increase the over-all loudness, but rather to increase the ratio of direct-to-reverberant sound at the listener's ear. Therefore, no low-frequency amplification had to be provided, as the frequency range below 400 cps does not significantly contribute to speech intelligibility and could be heard loudly enough from the natural voice to permit the amplified sound to appear natural.

The 90-degree horn covering the forward and transept areas has its signal attenuated approximately 10 db with respect to the horn covering the rear areas. Transition from one coverage pattern to the other is completely unnoticeable as one walks down the church, and the levels remain reasonably constant throughout the church. In most areas, one is not conscious of amplification at all. Controls are located in the balcony railing to permit the operator to hear the sound that he controls.

Column Loudspeakers

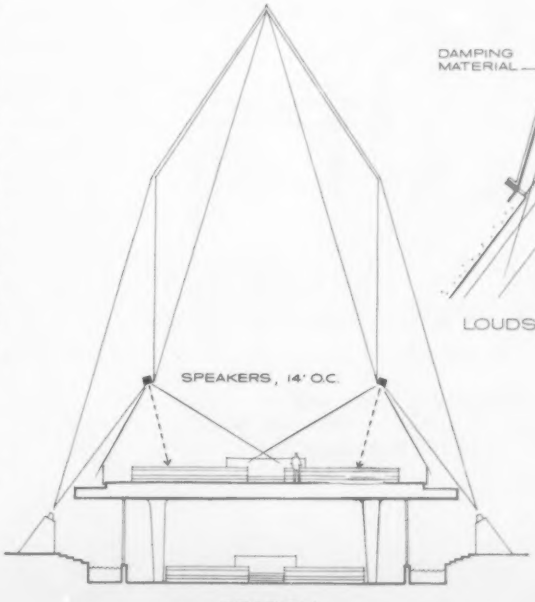
The congregation is blessed with a number of parishioners who are quite familiar



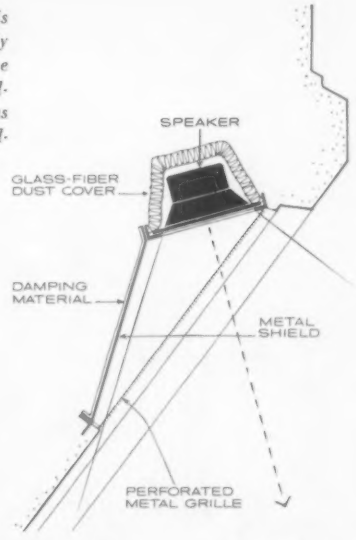
***(1)** Advantages of central-type loudspeaker system over a distributed type for reinforcement of a weak speaker in a well-designed auditorium. Distances A-Z and L_1-Z are approximately equal, but distance L_2-Z is much shorter. Use of distributed system (L_2) causes natural sound to be heard as an echo; sound energy of central system (L_1) reinforces that of person speaking.*

***(2)** Control system consists of six subconsoles for area within exhibition hall and has additional control for lobby, corridor, and committee-room system.*

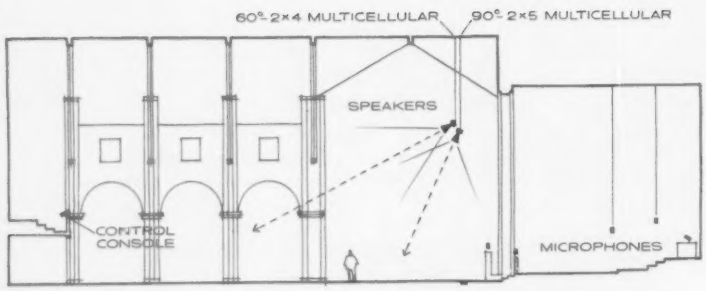
***(3)** Satisfactory coverage is obtained in this chapel, as each row of loudspeakers covers only the pew area on one side of the nave, despite the loudspeakers being tilted from vertical. Loudspeakers could not be placed flush in wall, as time delay problems would arise from each loudspeaker covering the opposite seating area.*



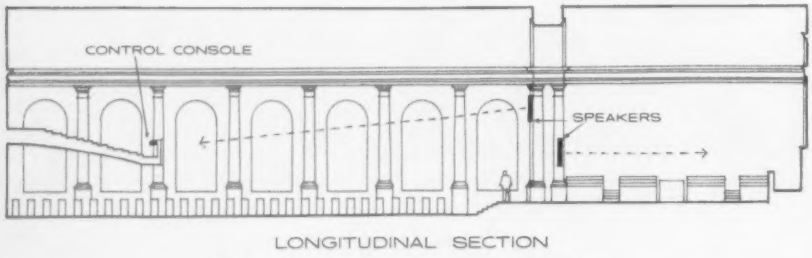
SECTION



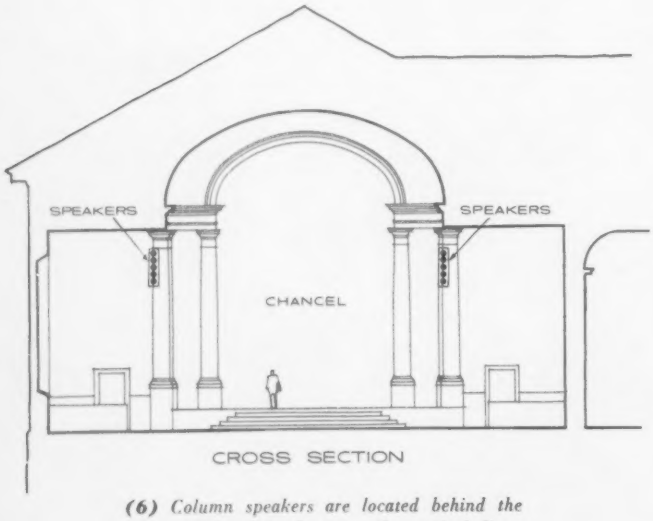
LOUDSPEAKER SECTION



(4) Central speech-reinforcement system, consisting of two radial-type horns minimizing room reverberation, provides uniform coverage. Console operator is located where he can hear sound in same manner as worshippers.



(5) Four column speakers are installed in this church: two are in the nave and two in the chapel.



(6) Column speakers are located behind the lectern and pulpit; however, the vertical directional characteristics of the loudspeakers control feedback.

with broadcast station operation. This is indeed fortunate, because the liturgy of the church is rather complicated, involving seven microphone positions and nine speaking positions, requiring some variation in gain and considerable switching between microphones to get best results from the system. Perhaps the eventual solution to this type of problem is to use switches actuated by pressure pads under the minister's normal speaking positions.

Column loudspeaker systems can often be more useful than horn-type systems in cases where architectural considerations allow them to be inconspicuous, and horizontal dispersion does not have to be fairly precisely controlled (as it would be in churches with transepts). The Harvard University Memorial Church has had such a sound-amplification system recently installed. The column loudspeakers were successfully integrated into the architectural design of this church **(5, 6)**. In checking over alternate designs for amplification systems, it was discovered that it would be impossible to hide multicellular or radial horns sufficiently large to be truly directional, or to install them in any manner that would not harm the appearance of the church.

The amplification solution actually contains two separate amplification systems, one for the pulpit and one for the lectern. Each independent system consists of an omnidirectional condenser microphone feeding a preamplifier limiter amplifier, followed by an amplifier with each power amplifier feeding two column-loudspeaker systems, one for the church itself, and one for the Appleton Chapel located on the other side of the screen behind the pulpit and lectern. This example indicates that such line-source loudspeaker systems need not come in a tall "package" with the name of the manufacturer on a stamped metal grille.

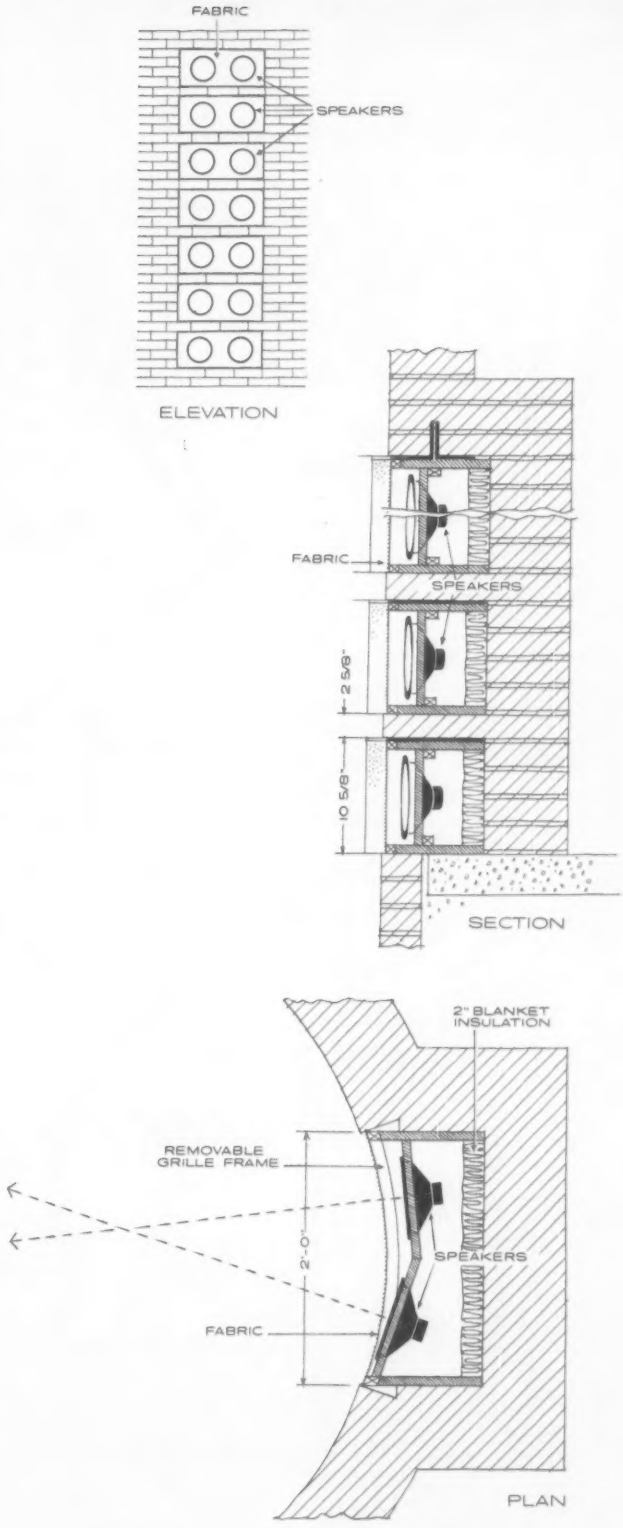
Line-source systems can even be made up of a number of loudspeakers set in small recesses into the building construction. For the First Methodist Church, Wichita, Kansas, such a solution seemed architecturally far more acceptable than a cluster of multicellular horns either exposed or requiring a large grille in the ceiling, yet could be designed to perform almost as well, acoustically, requiring only additional amplifier power. A front elevation and details of one of the two line-source loudspeakers employed in this church shows how a series of small loudspeaker grilles is employed, rather than

one large grille (7). This amplification system also contains separate systems for the pulpit and the lectern. Again, directional realism for members of the congregation should be excellent, since the loudspeakers are above and behind the microphone position.

The use of both a line-source central loudspeaker system and separate distributed loudspeaker systems is exemplified by the sound-amplification system designed for the new sanctuary and social hall complex for Congregation Shaarey Zedek, a synagogue in Southfield, Michigan, (8). A line-source loudspeaker to be located in the Ark (the traditional housing for the scrolls containing the Five Books of Moses) will provide coverage for the sanctuary, while a distributed loudspeaker system in each of the two social halls may be used separately or added to the sanctuary system for overflow coverage during the high holy days. Here, the coverage pattern of the line-source loudspeaker is aided by the sharply sloped ceiling design of the sanctuary. This surface is hard and sound-reflecting to provide close-in reinforcement of reflected sound energy of both the natural voice of the rabbi as well as amplified sound.

Use of Time Delay

A problem in the above design was the artificial echo effect for listeners located in the overlap zone of coverage both from the central sanctuary loudspeaker (and the rabbi's voice) as well as the distributed loudspeakers in either of the social halls. Without special measures, these listeners would hear first the nearby ceiling-mounted loudspeaker, then a delayed signal from the central loudspeaker system and the rabbi's voice. For this reason, it was recommended that the "overflow" signal to the social hall sound systems be routed through a time-delay system. In most cases, such systems consist of tape loops, with the tape running through a continuous cycle of erase, record, and playback. The playback and record heads are spaced to give the required time delay. For Congregation Shaarey Zedek, a time-delay unit was chosen that could be adjusted to provide the minimum echo effect for the maximum number of listeners in the overlap zone. Ideally, of course, the system should be delayed exactly the amount of time required to compensate for the difference in path lengths between the loudspeakers and the listeners' ears.



(7) Details of line-source or column-loudspeaker systems. Separate systems are located behind the pulpit and the lectern.

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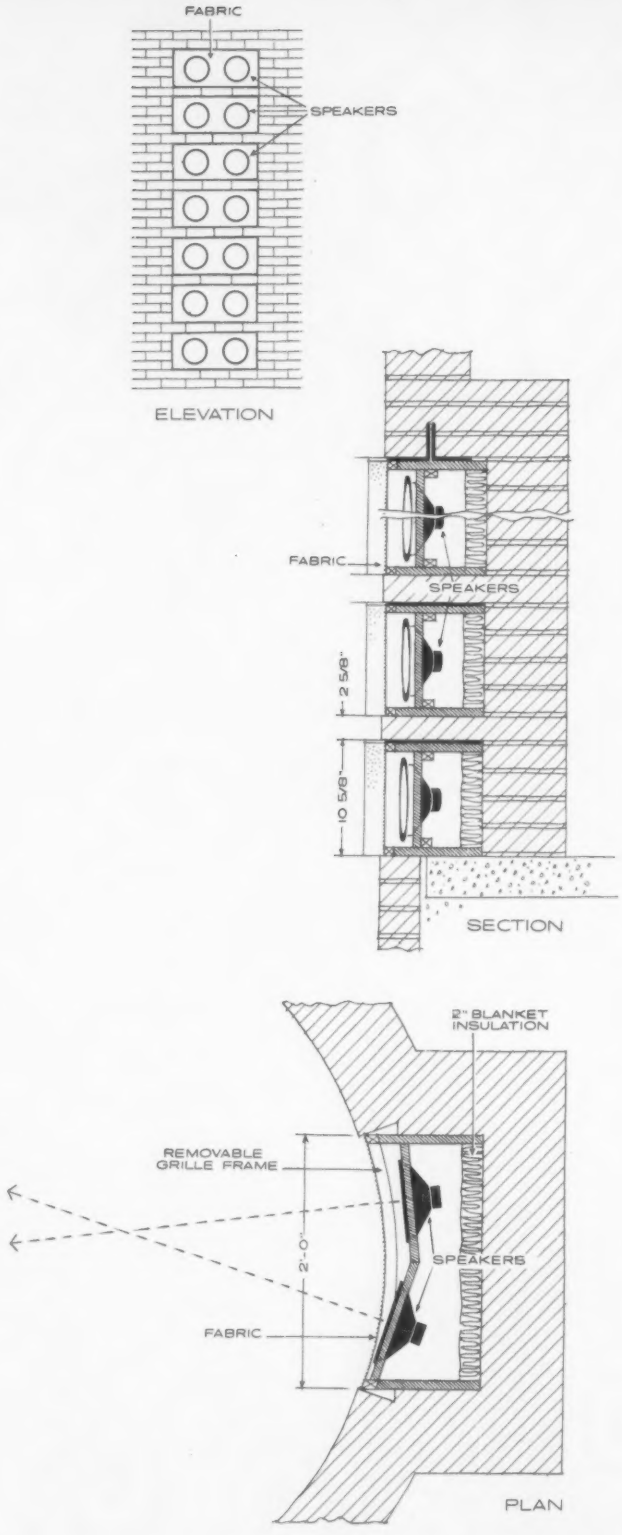
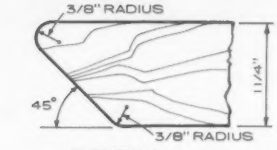


(7) Details of line-source or column-loudspeaker systems. Separate systems are located behind the pulpit and the lectern.



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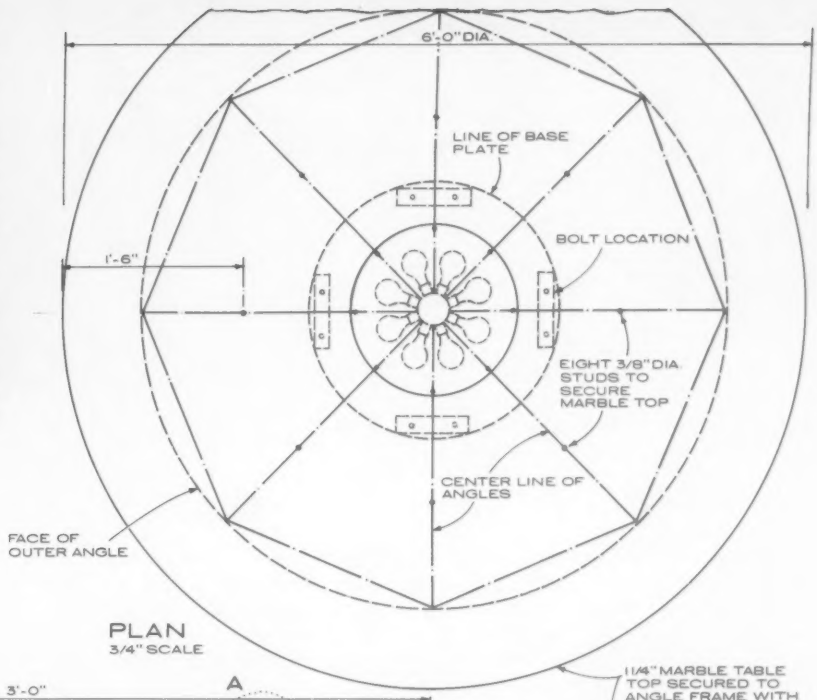
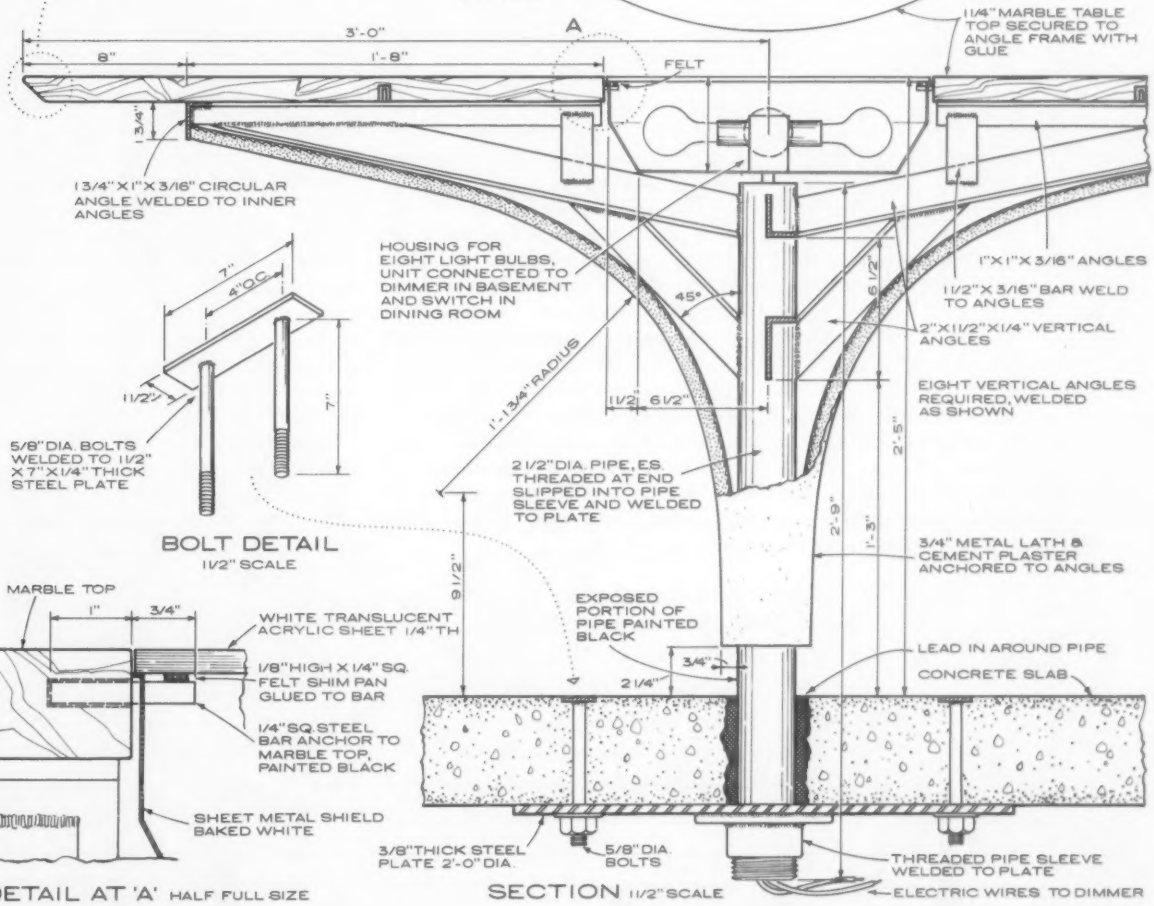


PLAN
3/4" SCALE


3'-0"
A
8"
1'-8"
FELT
1 1/4" MARBLE TABLE TOP SECURED TO ANGLE FRAME WITH GLUE
1 3/4"
1 3/4" X 1" X 3/16" CIRCULAR ANGLE WELDED TO INNER ANGLES
HOUSING FOR EIGHT LIGHT BULBS, UNIT CONNECTED TO DIMMER IN BASEMENT AND SWITCH IN DINING ROOM
1" X 1" X 3/16" ANGLES
1 1/2" X 3/16" BAR WELD TO ANGLES
2" X 1 1/2" X 1/4" VERTICAL ANGLES
EIGHT VERTICAL ANGLES REQUIRED, WELDED AS SHOWN
45°
1'-1 3/4" RADIUS
1 1/2"
6 1/2"
2'-5"
2'-9"
1'-3"
2 1/2" DIA. PIPE, ES THREADED AT END SLIPPED INTO PIPE SLEEVE AND WELDED TO PLATE
3/4" METAL LATH & CEMENT PLASTER ANCHORED TO ANGLES
9 1/2"
EXPOSED PORTION OF PIPE PAINTED BLACK
3/4"
2 1/4"
LEAD IN AROUND PIPE
CONCRETE SLAB
3/8" THICK STEEL PLATE 2'-0" DIA.
5/8" DIA. BOLTS
THREADED PIPE SLEEVE WELDED TO PLATE
ELECTRIC WIRES TO DIMMER

SECTION 1 1/2" SCALE

BOLT DETAIL
1 1/2" SCALE

MARBLE TOP
1"
3/4"
WHITE TRANSLUCENT ACRYLIC SHEET 1/4" TH
1/8" HIGH X 1/4" SQ. FELT SHIM PAN GLUED TO BAR
1/4" SQ. STEEL BAR ANCHOR TO MARBLE TOP, PAINTED BLACK
SHEET METAL SHIELD BAKED WHITE

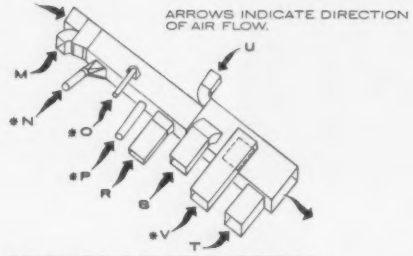
DETAIL AT 'A' HALF FULL SIZE

RESIDENCE: Grosse Pointe Farms, Michigan MEATHE, KESSLER & ASSOCIATES, Architects	SELECTED DETAIL DINING TABLE

Reducing Duct Friction

BY WILLIAM J. McGUINNESS

A preliminary report of duct-friction tests now in progress at the Mechanical Engineering Laboratory of the University of Illinois is made by a practicing mechanical engineer.



1 COMBINATIONS OF RETURN FITTINGS. * SOME TEST RESULTS ARE SHOWN IN FIG 2

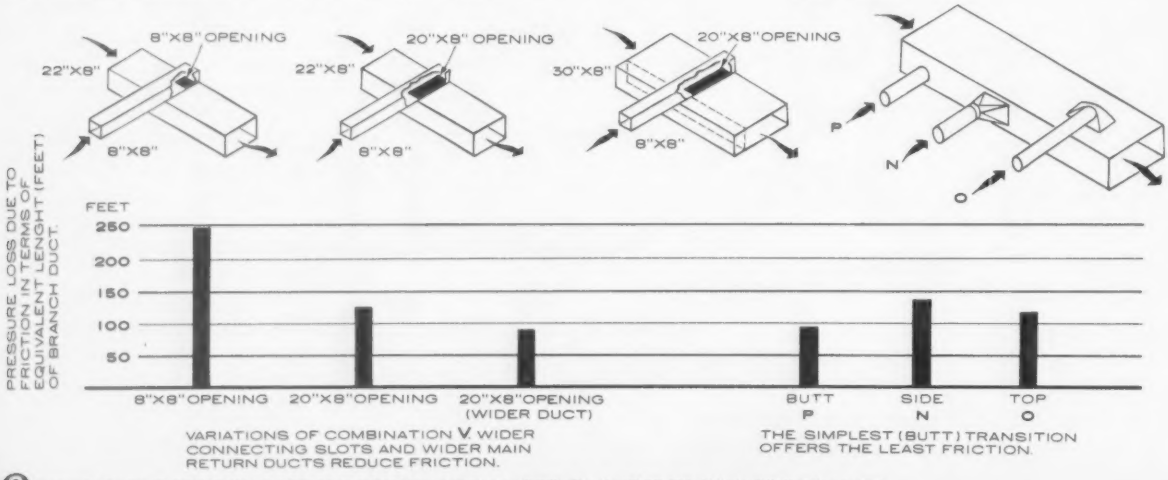
The respective objectives of engineers and contractors are to design and install air systems that operate with the least pressure loss due to friction. There is much available information relating to the selection of combinations that connect branch ducts to the main duct. Often the friction at the connection is quoted in "equivalent feet of branch duct." Thus a connection with a rating of 100 ft will have as much friction as 100 ft of straight duct. A great deal of the data apply to the supply side of the system. Field investigations have recently shown, however, that many heating and cooling problems can definitely be traced to excessive resistance in return-air systems.

Tests are in progress at the Mechanical Engineering Laboratory of the University of Illinois to establish methods by which frictional resistance in return-duct connections may be minimized. The work is under a co-operative agreement with the National Warm Air Heating and Air Conditioning Association. Some of the results have been made public while tests and the compiling of information continue.

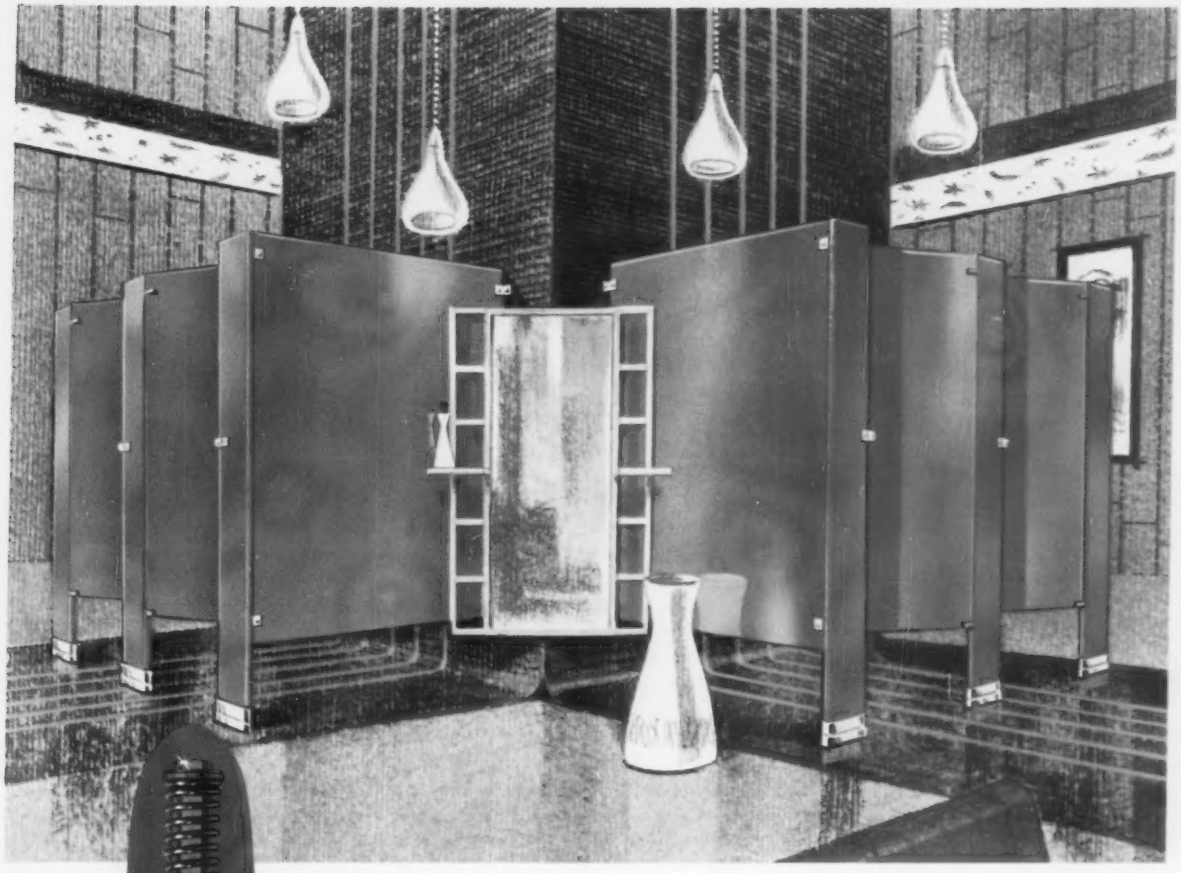
Connections V and T are commonly used in many return-air systems **(1)**. In residential warm-air heating, scheme V represents the usual method of drawing air through the space between joists or through a duct located in this space. The easiest method of connecting this branch duct to the main duct is to cut a hole between the two. In the absence of information about friction, it might seem satisfactory to make the hole about the same size as the cross section of the branch duct. Indeed, this is often done. The first sketch **(2)** shows such an arrangement with an 8″ x 8″ connecting hole, which is the same size as the branch duct. The connection produces the same friction as almost 250′ of a duct 8″ x 8″. The simple expedient of cutting a longer slot (8″ x 20″) reduces the friction to one half this amount and the use of a wider connecting hole reduces the friction to one third. In these tests, and those described below, the air speeds were fixed at 400 fpm in branch ducts and 800 fpm in main ducts.

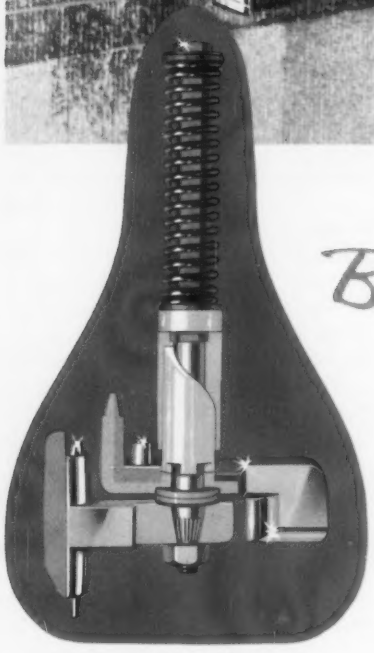
If connection V is not used, the air is often returned through the side of the main duct. Combinations T or P are sometimes chosen. Because of the apparent abruptness of T and P in their right-angle connections to the main, easy transition combinations N and O were borrowed for testing from among the connections usually used on the supply side, where air is delivered from main to branch ducts. It was thought that their more streamlined shapes might contribute something in return-air systems where they were seldom previously used. It was quite surprising to discover **(2)** that the simple and easy butt connection P resulted in less friction than either of the more elaborate supply connections N and O. Its test evaluation in feet of straight duct is about the same as the best arrangement of the top connection V.

These two selected items provide us with simple solutions to some friction-reducing problems in return-air systems. Other test results of this series are awaited with interest.



2 COMPARATIVE EFFICIENCY, TRANSITION OF BRANCH RETURN DUCTS TO MAIN RETURN DUCT





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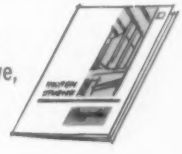

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Vitreous Wall Surfacings

BY HAROLD J. ROSEN

Another plea for the adoption of performance standards in the field of cold-glazed cement wall surfacings, by Chief Specifications Writer of Kelly & Gruzen, Architects-Engineers.

In the DECEMBER 1960 P/A, this column featured an article concerning the confusion that exists in the field of vitreous wall coatings and suggested that manufacturers of these materials get together and establish standards of minimum-performance test data. Elsewhere, in this current issue of P/A, there is a reply to that column by a manufacturer of one of these types of coatings. His reply confirms the fact that confusion does exist today, inasmuch as there are now three distinctly different categories of coatings that are marketed as vitreous wall coatings. These can be classified as: (1) true portland-cement-based coatings; (2) plastic-based surfacing with portland-cement filler; and (3) plastic surfacing without cement filler.

Architects and specifications writers unfortunately do not have a good background in the chemical and physical properties of materials—especially in the paint and coating field. When they examine manufacturers' literature for vitreous wall coatings, they find very little technical information contained therein that they can assess to determine first whether there is a difference between coatings, and secondly to which of the various categories the particular coating belongs. Manufacturers' representatives who are queried concerning these materials generally contribute little more information about the physical and chemical properties of their products.

The sales pitch and the literature as described by one manufacturer is to "romance the prospective user," glorify the product in Madison Avenue terms, and depict their product in glittering generalities. As an example, one piece of literature describes it as a "self-baking liquid coating," since it is composed of thermal-setting plastics. Actually, the term "thermoset" describes a chemical reaction that cannot be reversed if heat is applied, whereas the term "thermoplastic" defines a plastic that can be softened again upon application of heat. Another manufacturer states that his product is "heat-fused on" and contains portland cement and chemical plasticizers. Upon investigation, one learns that external heat is not applied to heat-fuse the material. It is implied that it is the heat of hydration of the portland cement that performs the heat fusion.

Does the reply by Swerdlow enable the specifications writer to specify the material that he believes has all the attributes based upon performance test data cited in manufacturers' literature? Under the present system of utilizing manufacturers' test data, there is no single frame of reference, no one established test that is used by all manufacturers.

With respect to hardness, for example, Swerdlow's literature states that his material can withstand the blow of a hammer. Is it a 1-lb, 5-lb, or 10-lb hammer? Is it swung by a child or an adult? Does it swing through an arc of 1, 2, or 3 ft? Another manufacturer states that his material has a Barcol hardness of 44 and a Rockwell hardness of 109-M. Another manufacturer states that his material has an impact resistance that shows no apparent effect from a 760-g steel ball dropped from a 30 in. height. Another manufacturer states that his material exhibits a pencil hardness of 4H, another of 5H. How does the specifications writer equate these various tests of hardness? How can he determine which is the hardest? Is it asking too much to get manufacturers to establish a single hardness test so that all of these materials can be evaluated by the same test?

With respect to abrasion resistance, we find the following varying tests: (1) no noticeable wear or visual detrimental effects after 500,000 cycles (one million strokes) of a mechanical activator moving a 4″ x 4″ oak block with a 25-lb weight through an 8-in. stroke; (2) scraping the surface with the edge of a coin shall not visibly penetrate the gloss; (3) Taber Abrasion Tester using CS-17 wheels and 1000-g weights, 1500 cycles, average weight loss 0.15-g. Need we say more; will not one standard test suffice?

The allowance specification and the detailed specification with deductible alternates suggested by Swerdlow are not the answer. Architects and specifications writers will still be reluctant to use these materials until the available technical literature is coherent, and not chaotic.

The vitreous wall surfacing industry can set standards for the three categories of materials now in existence. It will help to eliminate those products that do not measure up to the quality implicit in these standards. It will help the architect and the specifications writer far better in eliminating unauthorized substitutions of any kind.

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Cost Keeping and Control, and Taxes

BY JUDGE BERNARD TOMSON AND NORMAN COPLAN

P/A's legal team discusses "Cost Keeping and Control" and "Taxes," two topics that were surveyed at a recent seminar on office practice at the University of Oklahoma.

In February of this year, the Oklahoma Chapter of the American Institute of Architects conducted an office practice seminar at the University of Oklahoma, in which one of the authors of this column, Judge Tomson, was privileged to participate. There were many subjects of interest discussed at the seminar, two of which were "Cost Keeping and Control" and "Taxes." The discussion on these topics was led by John F.Y. Stambaugh, a certified public accountant, and a partner in the firm of Frazer & Torbet of Tulsa, Oklahoma. Stambaugh's remarks at the seminar were concerned with many of the "bread and butter" questions of architectural practice, and were, therefore, of direct interest to the readers of this column.

In discussing "Cost Keeping and Control," which Stambaugh termed "profit engineering," he pointed out that unless control is established over job costs, production schedules, and finances, the architect cannot evaluate the success or failure of his organization with respect to the type of work done. Although emphasizing the importance of the maintenance of appropriate records on job costs, Stambaugh suggested that the more important problem concerned the use to which these records should be put. He said:

"An architect's contract generally provides for payment of his fee as work is completed —25 per cent upon completion of preliminary plans, 50 per cent upon completion of working drawings, specifications, and bid letting; 25 per cent upon completion of construction supervision.

"The fee earned must cover promotion to secure work, cost of preliminaries, cost of working drawings, cost of supervision and profit. To control profit and avoid financial problems, each phase of your work should show a profit.

"We have found the architect's fee is spent as follows:

Promotion and nonproductive client accommodation	10%
Design	15%
Working drawings	35%
Supervision	15%
Profit before income tax	25%
Total fee	100%

These percentages are, of course, illustrations and will vary between firms.

"To illustrate cost control, let us assume a $200,000 job on a 6 per cent or $12,000 fee, and that our experience has established this same allocation of the fee dollar. We therefore allot $1800 for the preliminaries on design work.

"Upon completion of design, the job cost record shows that we spent $2160 rather than the $1800. Why? The answer can be given by the job captain, and, in part, by the job cost record. This requires our attention as a 20 per cent average on each following phase will cause a loss after promotion expense.

"To control the job profit, we should spot excessive cost before a financial problem arises. This is done with a periodic estimation of percentage of completion. The job captain states that the $1800 design phase is 50 per cent complete. The percentage of completion applied to be alloted cost indicates that cost should be approximately $900. Our Job Cost Record indicates accumulated costs of $1080. The comparison indicates that we have a problem. Knowing the problem, we can control the costs.

"The co-ordinated use of the job cost record, job progress, or percentage completion report estimate of what a job should cost, and close liaison with the job captain will develop control over each phase of production, inform the principals, and result in greater profits. This control can and should be used by the smallest or largest firm."

In his talk on taxes, Stambaugh suggested several areas of possible tax savings. For example, he considered the advantages from a tax-saving viewpoint, of incorporating a part of the architect's business. The legal and ethical considerations involved in this proposal have previously been discussed in this column (IT'S THE LAW, JAN., FEB., AND MARCH 1959 P/A). Stambaugh, however, pointed out in his remarks that the most neglected area in this field is the planning of business transactions to accomplish tax savings. He said:

"The most overlooked area of taxation is planning transactions for tax savings. Even the ordinary business transaction can be planned for tax savings.

"As an example, we may look at a firm which in December is nearing the close of an unusually high income year. A large job is nearing completion. The firm is on the cash basis.

"If the job is completed, billed, and collected in December, it will increase already high income. If the job is completed, billed, and collected in January, the income is moved into another taxable year and a substantial tax savings is accomplished. Expenses incurred but normally paid later may be pulled into the high income year by simply making payment in December rather than January.

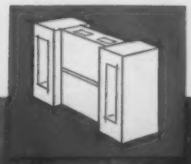
"These procedures require co-ordination and planning to achieve the desired results. It is possible to create a tax problem next year when attempting to solve a tax problem of the current year."

Stambaugh also considered the new record requirements of the Treasury Department for expense accounts. Of particular interest to architects, however, was his discussion concerning the proper deduction of business expense. As an example of an appropriate tax deduction for entertainment expense, he suggested the following:

"That portion of entertainment expense attributable to the proprietor is generally treated as personal. You, an architect, take a client to lunch to close contract. The ticket is $6.00, or $3.00 each. You normally spend $1.00 for lunch. The proper business entertainment expense is $5.00."

The foregoing are only some of the highlights of the seminar discussion. In fields as complex as those discussed by Stambaugh and reported in this column, the guidance and counsel of business, tax, and legal experts is a necessity.

Great new things are shaping up in concrete block



Architect Marcel Breuer, New York, alternated hollow-core units and standard 4" x 8" x 16" concrete blocks to create this striking masonry wall. PHOTO COURTESY NATIONAL CONCRETE MASONRY ASSOCIATION.

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The World of the Unisphere

Dear Editor: After reading about the 1964 New York World's Fair, I am appalled by the thought of the effect that this fair will have upon the future of architecture and design in America.

There can be no excuse for the design (or lack of design) of the Unisphere and the fact that the basic plan for the fair is, at present, 23 years old; 26 by the time of the fair. How can this antiquated design expect to attract progressive exhibits? Apparently Mr. Moses is not concerned. I am. My future is at stake and so is the future of every architectural and design student in this country. If America shows the world that progress in design is not necessary, then designers are no longer necessary.

At present I am a student of architecture at the Rhode Island School of Design. Where will I go from here? Into a world of Unisphere and clichés? How can we progress if we are satisfied to let a man exercise such complete control over a project with facts that he is not qualified to control? Mr. Moses is saying what was good enough for 1939 is good enough for 1964. This does not hold true in other fields. Why should this hold true in design?

It is unbelievable that the possibility of having the fair completely rejected by all of Western Europe and many major American companies has not caused a change in the existing concept or at least raised some doubt in the minds of those responsible.

I am writing this letter as a plea and proposal. Would it be possible for your publication to print both sides of this story so that we all may know the reasoning behind these plans? Then, and only then, will it be possible, if necessary, for all design students in this country to protest "en masse" and exercise our obligation to the future.

STEWART BRECHER
Rhode Island School of Design
Providence, R.I.

[*For P/A's comment on the 1964 New York World's Fair, see the "P.S." in the* JULY 1961 P/A.—ED.]

Slayton Congratulated

Dear Editor: I would like to commend you on printing the excellent statement of William L. Slayton, Commissioner of the Urban Renewal Administration (p. 49, MAY 1961 P/A NEWS REPORT). Mr. Slayton's statement is a remarkably effective and telling summary of the problems facing the architects when they participate in urban redevelopment and of the things that ought to be done to make it effective.

I hope every architect and every public administrator will read it carefully and try to meet the high objectives which Mr. Slayton has set.

EDMUND N. BACON
Executive Director
City Planning Commission
Philadelphia, Pa.

More Comments on P/A Symposium

Dear Editor: The P/A Symposium of March and April was excellently stated, composed, and presented, and the article on Kahn is poetic. Congratualtions to PROGRESSIVE ARCHITECTURE and especially to you for both of these recent events.

PAUL SCHWEIKHER
Pittsburgh, Pa.

Dear Editor: Congratulations on Part II of the P/A Symposium (APRIL 1961 P/A). The questions were very well directed and the answers equally significant. I was particularly impressed with the divergent and emphatic views expressed on industrialization.

Contrary to the prevailing view, I see great potential for industrialization and the concept of background-foreground architecture. I foresee two distinct types of practice. One is the traditional practice in which only those rare and multitalented artists of space will survive. The other type of practice will be done by teams of specialists, geared to mass-production techniques and guided by the sensitive hands of trained architect-industrial designers. The industrialized product will provide a background of order in which the more original, sculptural buildings will find an appropriate setting.

I am disturbed that so many architects expressed an arrogant disdain for industrialization. I am afraid that this hostility can only lead architects further away from the mainstream of the building industry. If too many architects take Louis Kahn's attitude that industrialization "is simply not worth talking about," then perhaps the result will indeed be "stagnation" and "mediocrity" as Mr. Stone predicts. I sincerely hope that there are enough "living, breathing, thinking architects" who *do* want to utilize standardization to its fullest potential. Then, I believe, we will be able to foresee a sane and sensitive total environment.

FRED STEPHENSON
Union Lake, Mich.

Dear Editor: I read with a great deal of fascination and concern the formidable Symposium on Chaoticism, which is, partly, at least, very confusing.

There must be very few architects who have heard much about the socio-economic and political changes in the world during the past 44 years. We are witnessing today one of the greatest upheavals in history, which is just beginning to really burst before our eyes.

We in America are sitting pretty in the most conservative corner of the world. We don't trust our eyes that something overwhelming is going on in Asia, South America, and Africa. Much of our charming stylism is nothing but self-conscious diversions from this "chaos." In a sense, our design chaos, which is actually not always disturbing but often lively, is not an isolated aesthetic phenomenon but a natural reflection of the world "chaos."

Yet there is some ruggedness and expressiveness in some of this which will survive, if we survive at all. Corbu's sturdy work in India stands there not only as a triumph of his personal artistry, but also as something well conceived for the future needs of a reappearing people. There is nothing degenerate about it. But we have still to wait for the original architectural language, which will be developed by the new nations who are coming out of their slumber. They will not like to imitate us, because they are proud of the great achievements of their own traditions.

However, they will need increasing industrialization and will face the question whether mass production has to offer something better than miles of curtain walls or oodles of geodesic domes. The possible craftsmanship of our machine age looked so much more promising from the Bauhaus angle, more than 30

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Or less fancifully, "the cover of any building" in Webster's routine definition of this somewhat commonplace word. And for the great bulk of residential construction in recent years, roofs have been just that—reasonably protective, wholly commonplace. But architects are of course aware that they can be much more, as is notably the case when Follansbee Terne is specified. For this time-tested metal permits the roof area itself to become a major design component, permits both form and color to unite with functional integrity in a lasting guarantee of client satisfaction. Whether architect or prospective builder, we should be very happy to send you detailed substantiation.

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years ago, than it does today. Maybe its importance will be apparent only much later. Today we might find more purpose in our own work and life if we would stop worrying about ourselves and would help the people abroad who are fighting for a better world, instead of our fighting them. Although our civilization produced an Einstein, we don't seem able to make good use of his ideas. Maybe other continents will. Then they will make the new manifestos.

There is no way of telling how some of us will manage to struggle out of the confusion. Some even think that there is none. Some are irritated by individualism—of others. I would not blame anyone for trying to make his own mistakes. Even the gods err. Experimenting with new materials, methods, and forms is useful and comes natural to the inventive mind. To understand the physiological and psychological needs of man will call for much continued research and will lead to further experimentation. The accompanying confusion may be a good thing. It may create insecurity in the imitators. Who is going to tell them what is more beautiful, Yamasaki's "beauty" or Kahn's "ugliness," unless we have a dictatorial academy? Those who complain about making each commission self-important forget about the strange contradictions of our society. On the one hand we glorify self-seeking enterprise; on the other, there has never been more egalitarian life. A really individualistic building is actually a rare thing today and could hardly disturb an "integrated community composition."

We will get that kind of composition only if we have an "integrated" community. As long as we don't have it, if that is what is desirable, let's do at least a few buildings which show some ingenuity. They may set new examples and, in the meantime, may cheer us up in a sea of less eventful buildings.

Our time is moving incredibly fast, and increasingly so, which is bound to show also in building. You cannot experiment with new materials coming from the production line without using them. The artistic results will vary, depending not so much on the architect's possession of the right formula but on his ability to put together the sticks and stones in a way which will produce more than a mere building. It still will depend on the singular effort to get this achievement, and it will happen no matter how justified this particular work of art may be. It should not be confusing that other results keep coming up—the arbitrary forms, the inane decorations and the waste of materials to girth conspicuous consumption of those who know what is best for the country. And our efficiency-minded technocrats, who are interested in square feet for the laboring force, will continue to get their miles of slabs and envelopes. Isn't it all rather appropriate? Society was never remodeled by the man with the drafting pencil; it was always the other way around. Even the rare client who wants that wonderful, "crazy" house is a part of the forces that shape society. As individual designers, we can and should make individual contributions which will be felt in some instances more than in others. We can and should do our share as citizens and may help to do some changing of basic conditions. As architects, we can and should dream, propagate education and hope to show the way, but we are not running society—fortunately.

H. H. WAECHTER
Cresswell, Ohio

Correction

Dear Editor: I wish to draw your attention to an error in credits in the May 1961 P/A. The mural painting in the living room of the Dr. Henry Simon home (p. 135) is by Harold Carney, not by my colleague Pat Trivigno.

HAROLD CARNEY
Department of Art
Tulane University
New Orleans, La.

Recollections of Lou Kahn

Dear Editor: Jan Rowan's article on Lou Kahn and his philosophy was a truly fine piece of work. I enjoyed it very much and I am glad he mentioned the efforts of Dean Perkins in organizing the school at Penn. There should be continued efforts to probe the mind of the architect as well as the façades he may produce. A searching mind such as Lou Kahn's and a bold, new architecture are difficult to understand in a brief encounter, yet the article provided a good understanding of the man and his work. The illustrations were particularly interesting, along with the rest of the Philadelphia School.

I am reminded of two years ago when I was received in Lou Kahn's office for a talk, but my subject was never discussed. He was excited. Late the night before he had found an expression or a symbol for that thing which he finds common in all of life: he called it "ina." On his desk was a short roll of tracing paper. A rolled out piece of great length was sprawled over his desk. His symbols, covering the paper from beginning to end, were composed of a rose, a tree, man, and many other living things, all drawn in those peculiar hieroglyphics. The architect is of a particular make, especially when he strives to know the "why" of life to strengthen and understand his art.

Kahn did not seem concerned if this "ina" element of life became less because he had drawn its symbol on paper, but his enthusiasm for its discovery, that is, his discovery of it, was comparable to the joy of a child. It was the enthusiasm of a young, inquiring spirit possessing a profound humility. This spirit, and Kahn's desire to give unselfishly to the student, make him one of the finest and most provocative teachers. Although one may sit around a rather dingy table in a depressing room, as a student one feels the coolness of shade under a giant tree against the trunk of which Kahn sits, eager to give, willing to discuss his "realization," architecture.

Kahn's own realization was slow in developing. His philosophy began to transcend the confines of architecture about 1936. His early thoughts were about order, and thus about hierarchy and the systems and hierarchy of architectural spaces. Some of these early thoughts were discussed with the great Albert Einstein. But the mundane aspects of life held back any concerted effort in the development of his philosophy until he accepted a position at Yale in 1947. Growth and development on the foundation of the Bauhaus and Le Corbusier was vigorous from then on. Full realization did come about 1955 with the design of the Trenton Bath House (not the Yale Museum addition). From this small building came a bold and individual architecture. The man, the individual, was now an architect, or as Lou Kahn said, "Now, I could not work for Corbu."

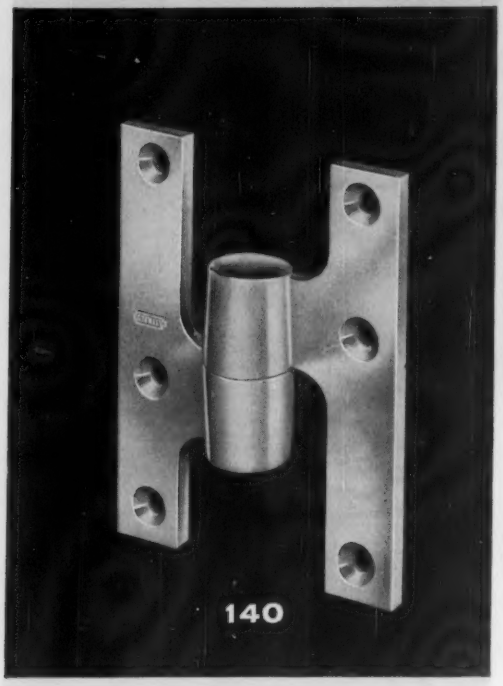
DONALD LESLIE JOHNSON
Seattle, Wash.

Serene Fishing Village

Dear Editor: We have just had the pleasure of reading and studying the "Fishing Village for Interns" project for the University of Washington Hospital (JUNE 1961 P/A). Aggressiveness has been set aside. Serenity prevails with a spirit and flavor most welcomed today.

To the architects, Bassetti & Morse, we offer our congratulations. This subject is most interesting in content and its totality a real pleasure.

MICHAEL FELDMAN
SKOEN MEZES
ARTHUR LAU
Montreal, Canada



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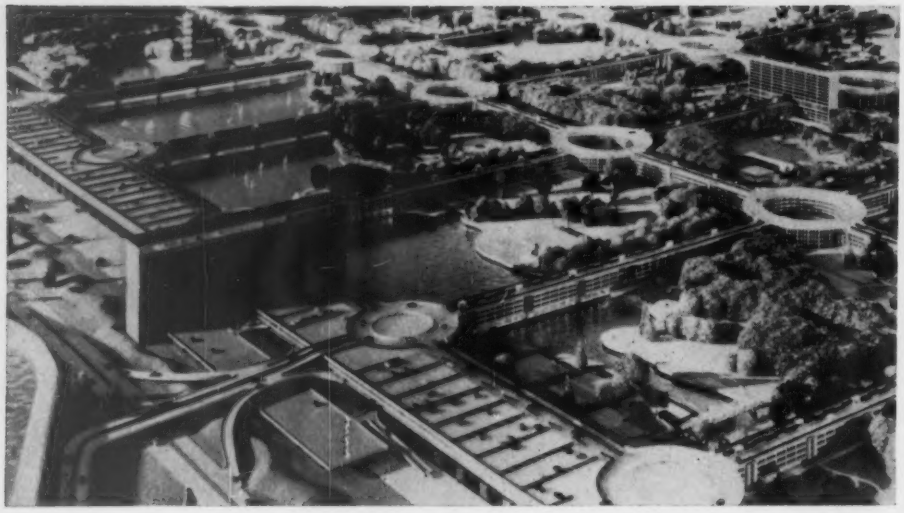

The Machine and the Biological World in Conflict

BY RICHARD P. DOBER

Executive Director of Sasaki, Walker & Associates discusses the proposals offered by Motopia: A Study in the Evolution of Urban Landscape. *G. A. Jellicoe. Frederick A. Praeger, Inc., 64 University Pl., New York 3, N. Y., 1961. 165 pp., illus. $9.50*

An acceptable definition of utopia describes the concept as a "rational belief which is in the long-run interest of the holder; it is a belief, not existing in reality, but in potential reality; it must not violate what we know of nature, including human nature, though it may extrapolate our present technology and must transcend our present social organization." Viewed in this light, Jellicoe's didactic treatise on the automobile in the urbanized (please, not urban) environment can be easily questioned on serious critical grounds. To many readers, however, the visual poetics, not the conceptualization, will be important. Beautifully manufactured, illustrated with a sensitive selection of photographs, and reinforced by Gordon Cullen's drawings, many will enjoy this delightful little book on its own terms, as I did. On these grounds, it can be fully commended.

As to content, Jellicoe makes his position quite clear, in direct and candid terms. The purpose of his study is "not to attempt to alleviate the major problem of existing cities . . . but designing a new setting unencumbered by what already exists." He looks upon the automobile as being "as significant to man's material way of life as anything that has happened before, except perhaps the invention of printing." He is concerned, as we all are, that "fifteen years ago it was calculated that there would be one car for every ten houses; today the figure is one car per house." Man's passion "to increase his own mobility" and "to live up to his own neighbor" insures "that short of economic catastrophe or further invention, the car is with us indefinitely."

In motion, the car "makes undesirable noises . . . emits an odour as disagreeable as that of a skunk, able to kill plants at three feet and permanently retard growth for a considerable area around. It requires space at home equal to that of half the living room, and demands aggressively an equal amount wherever it may terminate its journey." Basically, then, the machine and the biological world are in conflict. The resolution of ideal town form would seem to be one in which "traffic circulation were piped like drainage and water . . . out of sight and mind. . . . It cannot do this on the same level as the ground, and therefore must go underground or overhead." But underground is too expensive; on stilts is aesthetically unpleasing.

Ipso facto: "Let us observe the long lines of terraces, their height and relation to trees and open spaces. Let us observe how old-fashioned are the high-pitched roofs with their chimneys, and how more orderly is the modern terrace with its flueless heating and its concrete fits it so admirably in regard to breadth, would happen if we quite simply took the road, placed it on the roof which fits it so admirably in regard to breadth, and then left the whole of the land free to do with what we will—walk, run and play, breathe deeply, and associate with trees and flowers unspoiled by petrol fumes." This, then, is the essence of Motopia.

The design form of Motopia is conceived as a geometric grid of continuous buildings. The buildings form circles at intersections. Roads are placed atop the roofs, and the ground is thus free (in theory) for the pedestrian. The upper level of the framework is set aside as garages, and on the floors immediately below, a variety of housing types are linked together. The contrast between the treatment of the ground-level areas and the building framework is a distinct one. The rectangles formed by the grid vary in size, and within each of these would be set special communal uses—a church, a school, a town center or recreation park.

Continued on page 164

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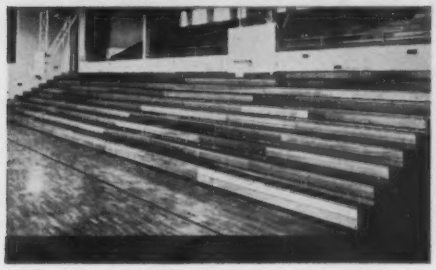
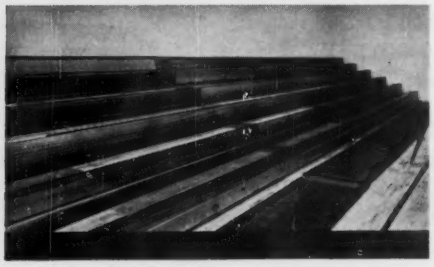
Architects: Fox and Fox—Chicago, Illinois



Inglewood High School—Inglewood, California
Architects: H. L. Gogerty—Los Angeles, California

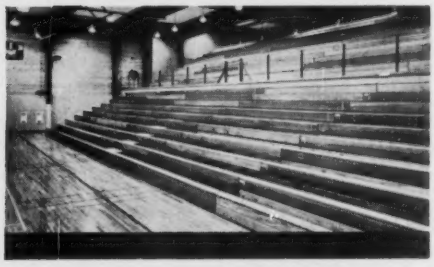
Cerritos College—Norwalk, California
Architects: Kistner, Wright & Wright—Los Angeles, Calif.

Institut des Technologie—Trois-Rivieres, Canada
Architects: Denoncourt & Denoncourt—Trois-Rivieres, P/Q.



Darien High School—Darien, Connecticut
Architects: Ketchum & Sharp—New York, New York

North Bend Junior-Senior High School—North Bend, Ore.
Architects: Hamlin & Martin—Eugene, Oregon



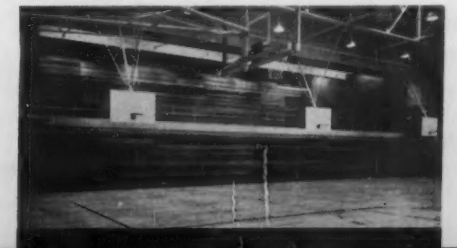
Lake Forest High School—Lake Forest, Illinois
Architects: Stanley D. Anderson Associates, Inc.—Lake Forest, Illinois

Millard Junior-Senior High School—Millard, Nebraska
Architects: Hollis and Miller—Overland Park, Kansas

Hamilton J. Robichaud High School—Inkster, Michigan
Architects: Bennett & Straight, Inc.—Dearborn, Mich.

Pottstown Senior High School—Pottstown, Pennsylvania
Architects: Sanders & Thomas Associates—Pottstown, Pa.

Weber County High School—Ogden, Utah
Architects: Keith W. Wilcox and Associates—Ogden, Utah



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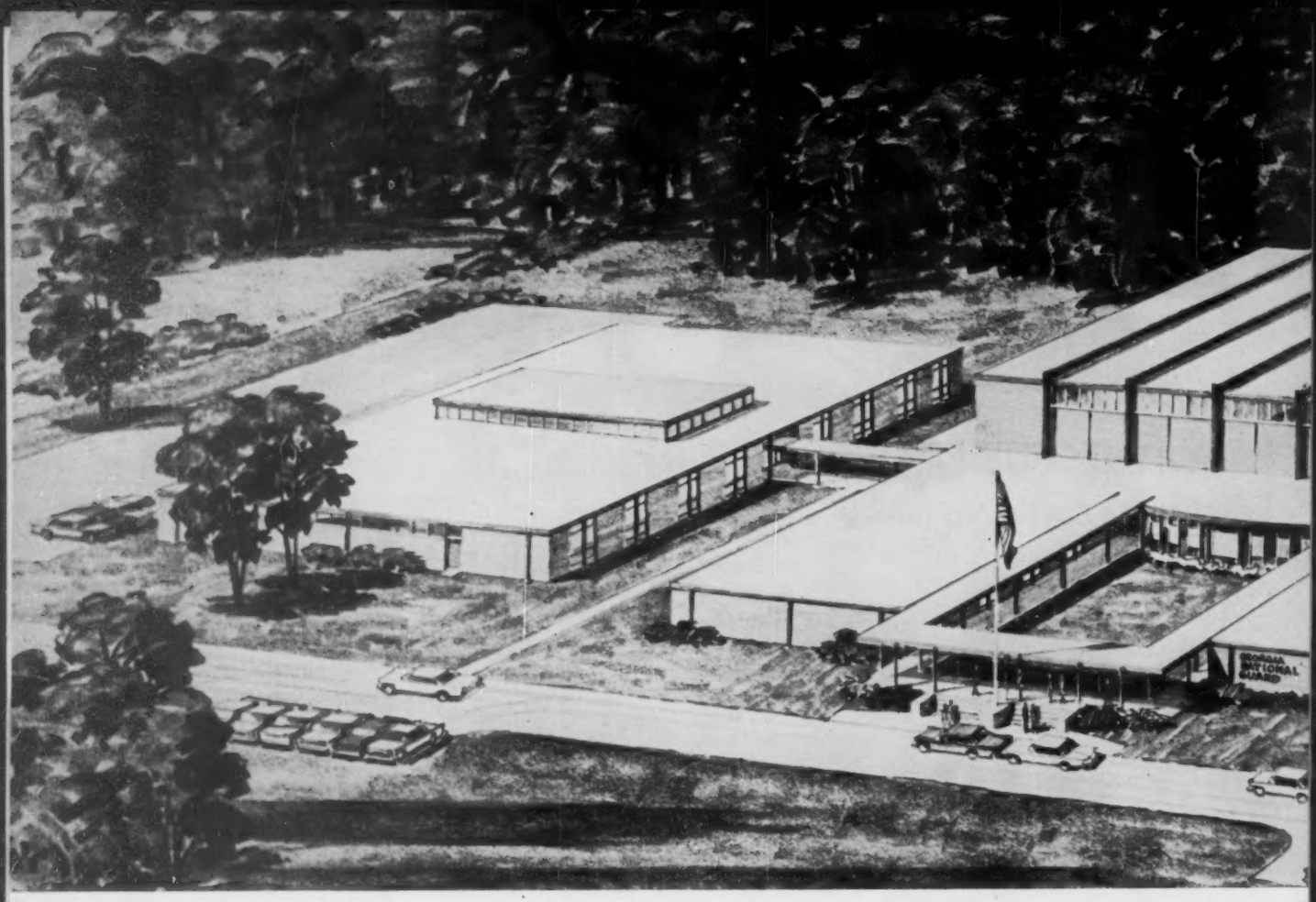

Plastic design of Georgia armory cuts weight of steel frame 15 per cent

Rigid-frame bents spanning 120 feet set new U.S. record for longest plastic-designed clear span

The Georgia National Guard Armory in Savannah, scheduled for completion late this summer, includes three steel-framed buildings linked by covered walkways. The central structure contains two headquarters and administration wings, and a column-free drill hall which will seat 5,000 when used as a sports arena. The two flanking buildings are each large enough to hold four company-size units.

Frames are outside of buildings

Seven 120-ft-long, rigid-frame bents, 20 feet center-to-center, span the drill hall. Clear height is 30 feet. Each of the 15-ton bents was fabricated from 33 WF 152 lb sections, giving a depth-span ratio of 1:44. Eight-inch purlins are framed into the bottom of the wide-flange sections, to expose the major portion of the frame outside the building.

The architects also derived an aesthetic as well as a functional use of the steel frame in the flanking buildings by exposing the columns. These support 12-inch channels which act as a fascia, and 12-inch light beams which frame the roof.

15 per cent savings in steel

By using plastic design, the architects were able to reduce by 15 per cent the amount of structural steel needed to frame the buildings, as compared with the requirements necessary under the elastic method.

Steel design by the plastic method is a new development in design technique, and generally results in a more efficient structure with less steel required to achieve the same strength. It also saves on the cost of engineering, since it demands less engineering time on the part of the designers.

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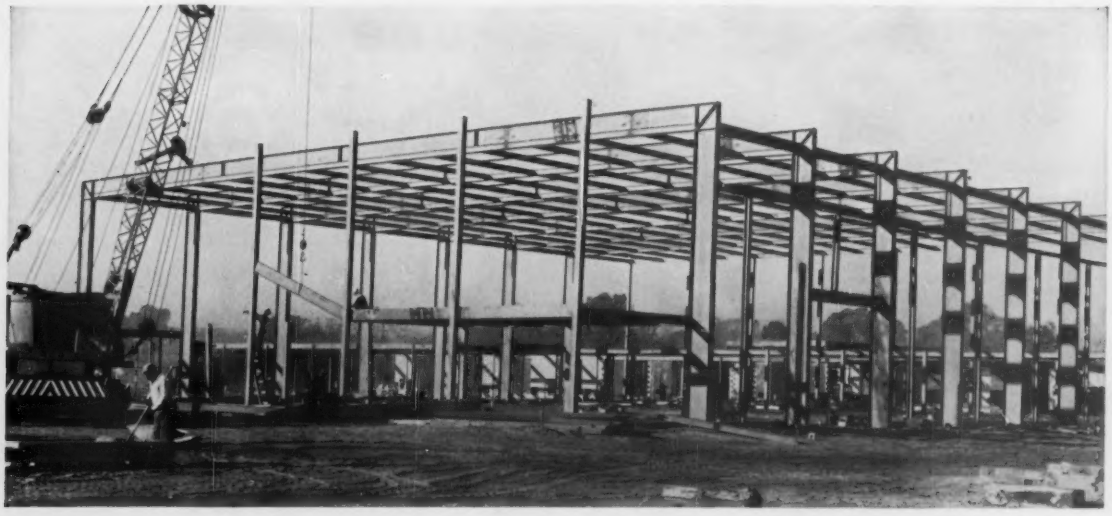
Steel is used extensively throughout the Georgia National Guard Armory, not only as a structural system, but also as frames for windows, canopies, and glass curtain walls. *Architects and Engineers:* Thomas-Driscoll-Hutton. *General Contractor:* Hugh Jackson. *Steel Fabricator:* Owen Steel Company. *Steel Erector:* Steel Erectors, Inc. The major portion of the 310 tons of structural and miscellaneous steel was supplied by Bethlehem.



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Continued from page 160

This kind of pattern making has its historical roots, and Jellicoe ably illustrates some of the sources he has synthesized in his scheme.

There is a strong tension that comes about by contrasting the constructions of man with the natural forms of the geo-landscape; this has been capitalized on in every era of city building. Carnac, Priene, Palma-Nova, and LaRoche-sur-Yon are shown in exemplary fashion. The softening effect of landscape elements in urban places is poignantly and pointedly shown.

In selecting a housing type, though, the author too quickly glides from Chester Terrace to Unité d'Habitation; and the choice of town centers lacks conviction—though he brings together in a convenient place the old war horses of urban design including St. Mark's Square. Further, since the handling of traffic is basic to the author's grand scheme, one looks for a balanced view as to kinds of carriers involved, the technological innovations that utopian thought should engender, and some fair deliberations on functional solutions. These are missing and the work suffers for it.

In many ways the author's approach to urban design echoes what is becoming one of the recurring themes among the American theorists (although I do not think Kevin Lynch, David Crane, Sasaki, and Kahn, among others, would be favorably disposed to Jellicoe's synthesis). This concept holds that lines of communication and transportation can be manipulated in artful fashion to create a superstructure of design opportunity. Within the framework a background texture of compatible uses might be set (such as housing or commerce or manufacturing); or foreground uses and special events such as a central community area. Key intersections would be marked with significant incidents, either architectonic, geographic, topological, historic, or that intangible atmosphere that marks a sense of *place*. Hopefully, these elements could be arranged so they have a meaningful and recognizable form at high speeds, yet could be further broken down into smaller design areas and relationships at the next level below travel speeds—let us say the speed of arrival or departure—and finally blossom into a richer context at the pedestrian scale.

Even as a diagram, Motopia falls apart when examined against this background. The potential of integrated design form is lost; there are no beginnings and no ends. The continuous landscape under the grid is a burlesque of nature contrived. A sense of the scales of motion is missing, for there is little throttling down from the massive network to Cullen's on-the-ground urban place. The town centers and special events fail to surface from the oppressive sterility of the background architecture. It is not enough to suggest that the ground-level, pedestrian impressions are what count. Our sense of site is built up in layers of sensations and feelings, not all of which are responsive to the three-dimensional character of what we immediately see. Getting there is half the fun.

To be fair about all this, I admit that the author has designed into Motopia what he considers to be the essential English character—sailing, private gardening, and long walks. In an engaging way, he has tried to answer the inevitable criticisms of detail. And I sensed that he catalogued the ills of urban life in English New Towns when he blocked

Continued on page 172

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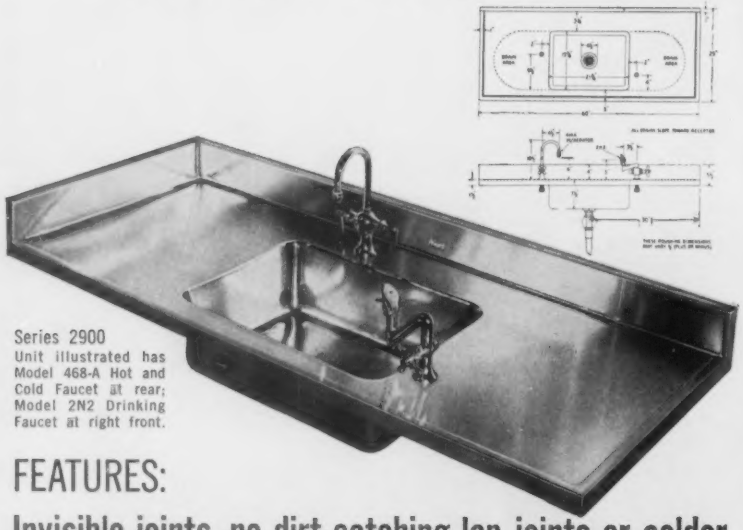

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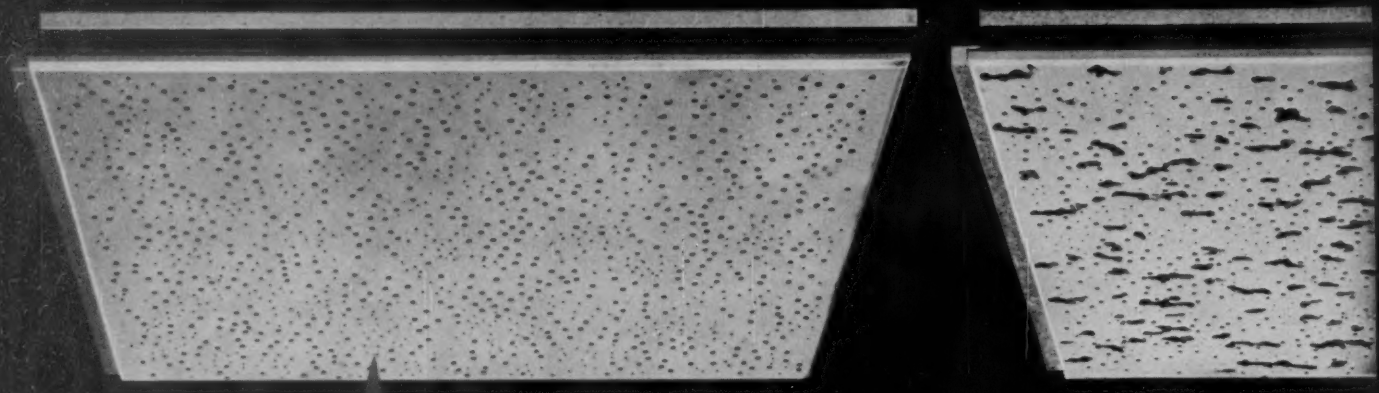

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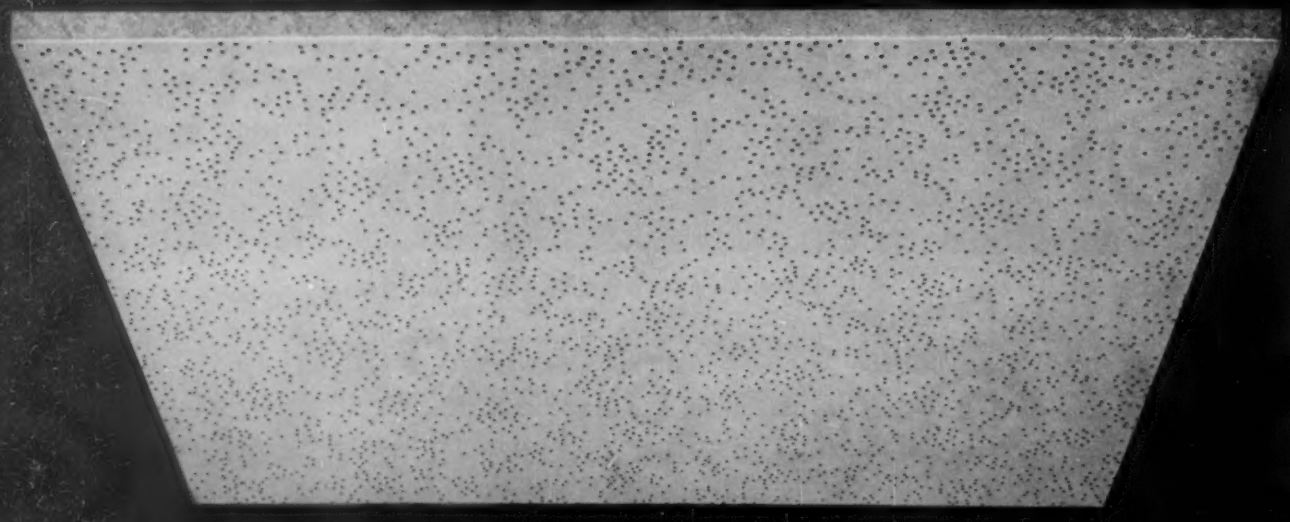

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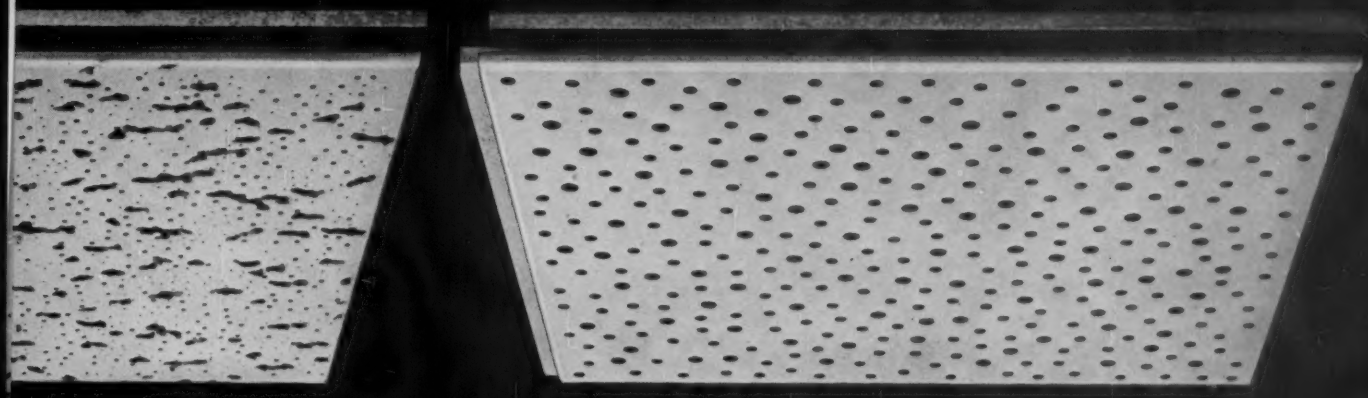

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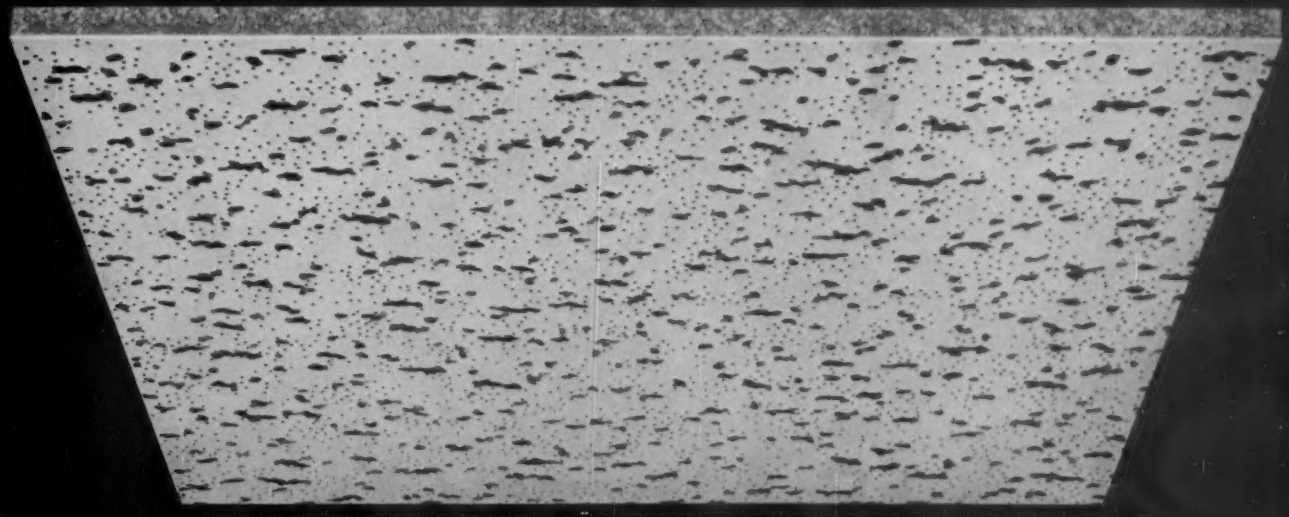

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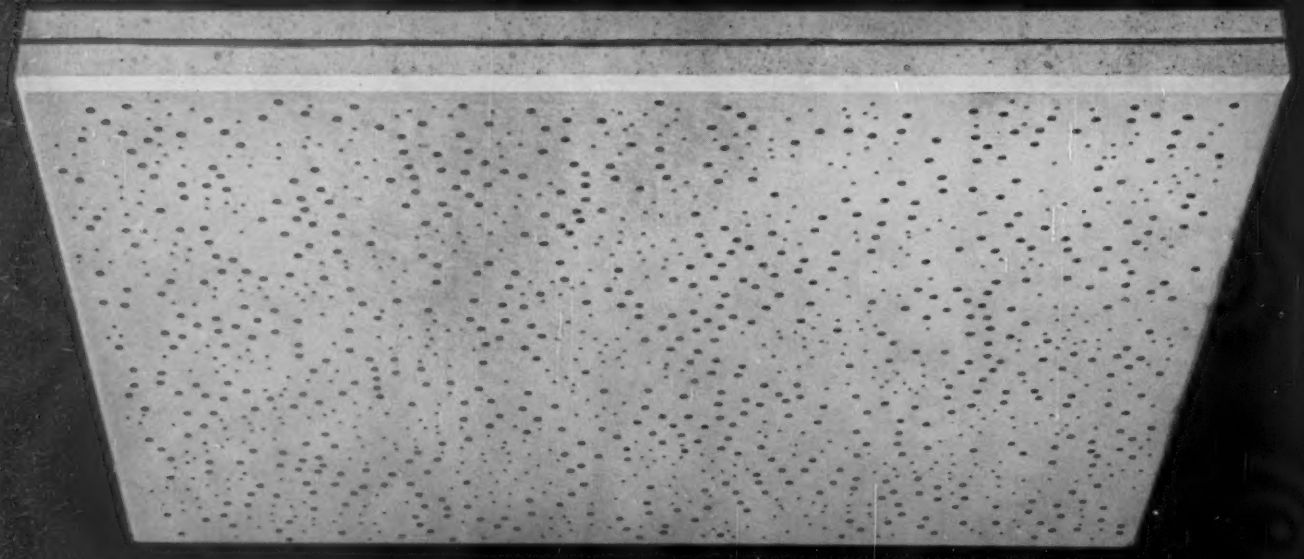

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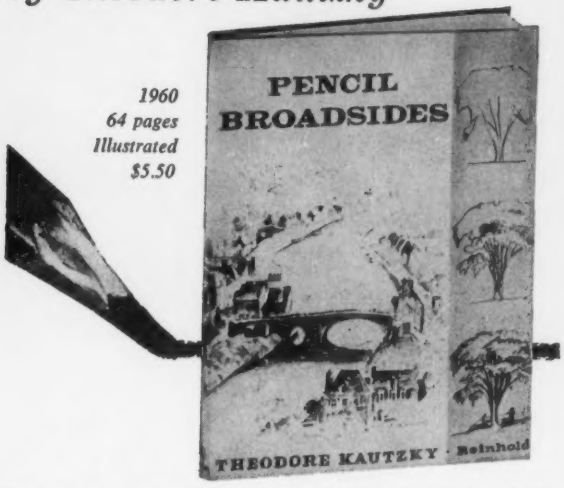

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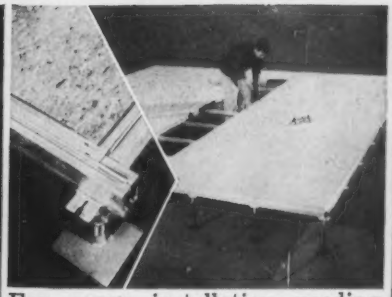

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There are several types available . . . from the top they generally look the same. Underneath, it's a different story. Visit an installation of any brand, lift a panel, rock a pedestal. You'll *see* the difference between ELAFLOR and the others. But, you can save lots of time by referring to our literature . . . the facts and drawings are all there.

*Pat. App. For

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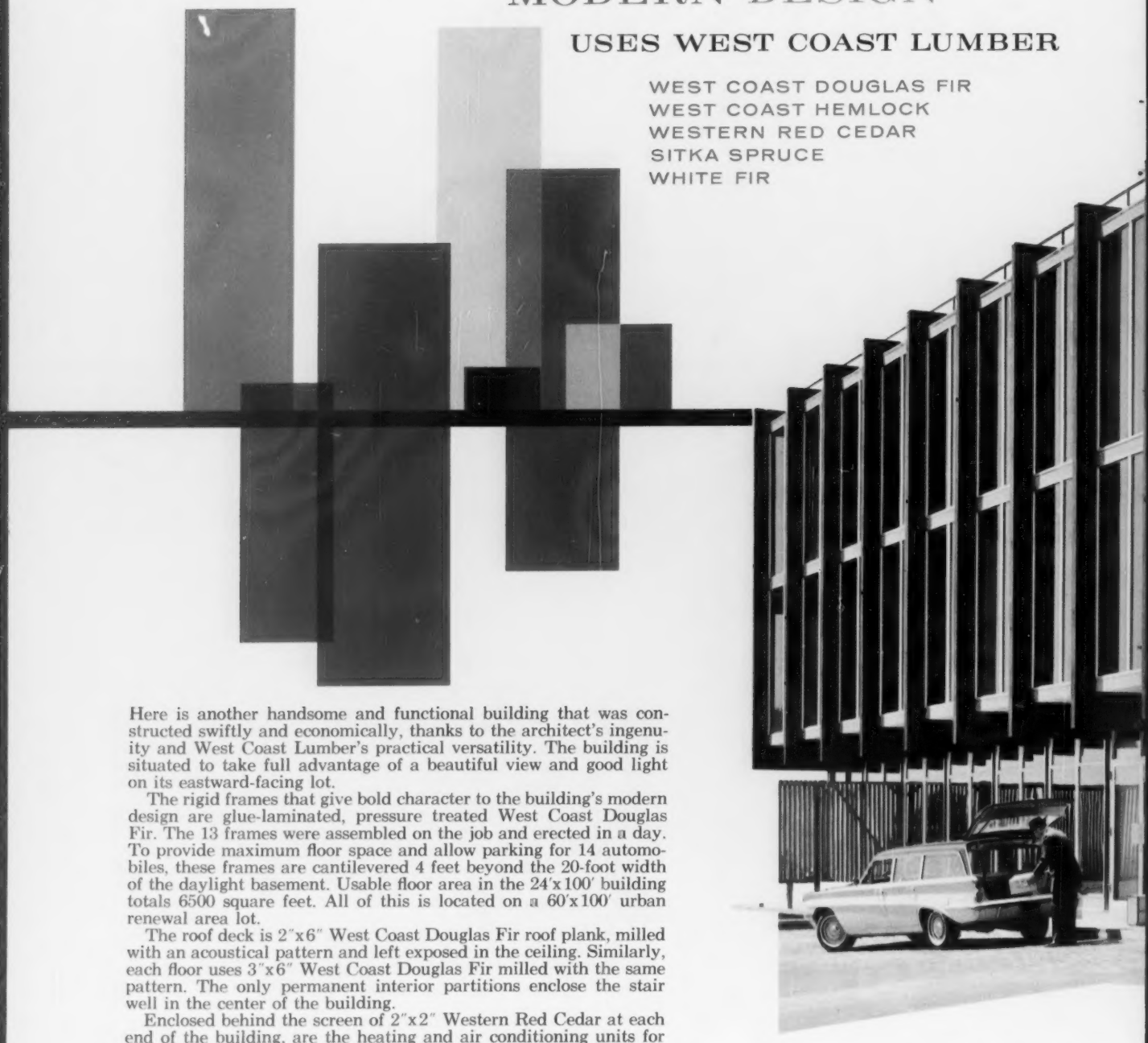
MODERN DESIGN

USES WEST COAST LUMBER

WEST COAST DOUGLAS FIR
WEST COAST HEMLOCK
WESTERN RED CEDAR
SITKA SPRUCE
WHITE FIR



Here is another handsome and functional building that was constructed swiftly and economically, thanks to the architect's ingenuity and West Coast Lumber's practical versatility. The building is situated to take full advantage of a beautiful view and good light on its eastward-facing lot.

The rigid frames that give bold character to the building's modern design are glue-laminated, pressure treated West Coast Douglas Fir. The 13 frames were assembled on the job and erected in a day. To provide maximum floor space and allow parking for 14 automobiles, these frames are cantilevered 4 feet beyond the 20-foot width of the daylight basement. Usable floor area in the 24′x100′ building totals 6500 square feet. All of this is located on a 60′x100′ urban renewal area lot.

The roof deck is 2″x6″ West Coast Douglas Fir roof plank, milled with an acoustical pattern and left exposed in the ceiling. Similarly, each floor uses 3″x6″ West Coast Douglas Fir milled with the same pattern. The only permanent interior partitions enclose the stair well in the center of the building.

Enclosed behind the screen of 2″x2″ Western Red Cedar at each end of the building, are the heating and air conditioning units for each floor. The equipment is mounted on a cantilevered, nail laminated deck of 2″x4″ West Coast Douglas Fir. This feature releases still more interior floor space.

Another interesting feature is the blending of the creosote color resulting from pressure treatment of the rigid frames with a complementary color. Pigmented stain was applied to the screen at the end of the building and to the 2″x8″ Western Red Cedar exposed blocking between the frames.

Standard sizes of West Coast Lumber are designed into this functional structure which costs approximately $15.00 per square foot.

Give freedom to your imagination with versatile West Coast Lumber. Complete information on sizes, grades and supply awaits you at your nearby lumber dealer.

Architects: Shell and Hoyt, A. I. A.

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Continued from page 164

out this section of the book.

For example: different architects will work on different façades to relieve the severity of a single conceptual order. Basic circulation elements (stairs and lifts) are set by the master architect, but after that the prospective tenant may rent, lease, or purchase as much space as he wishes. For all the "general freedom of expression there are of course rigid codes of practice in regard, for instance, to overshadowing and also to garden watering." Strong acoustical controls have been engineered, and the nuisance of "wireless" noise from open windows on summer days has been alleviated by air conditioning. Arcades cover us in inclement weather during trips afoot to the town center. Water buses provide on-the-ground mass transport; the cyclist is banned. Motopia would be built by a consortium of companies, to rent for about £100 per unit per month.

What does this future, to which Jellicoe addresses himself, mean to us? By the middle of this decade, the postwar children born from 1945–50 will begin to enter the family-formation stage. For each dwelling unit spawned in those years of decentralization, two more will have to be built. Barring holocausts or economic stasis, we will be faced with a housing dilemma previously unknown in history. Not in the sense of numbers alone—for in this quantitative respect other countries are already beyond the problem we will face—but in the sense of having the means to choose among any number of manageable ways to shape and form our environment.

I expect that the restraints and constraints on metropolitan design will slowly give way during this period under the process of evolving laws at all levels of Government. The necessary legal instruments will emerge to construct satellite housing and community facilities, control the use of open space and water on a broad geographical basis, and integrate all forms of private and public transportation into a balanced system. The identification of what is private and what is public construction in terms of environmental design will become more blurred, as is now happening in urban renewal and redevelopment.

Among the direct results of this surge, I anticipate combines of developers assembling small and large holdings on a lease basis (land close in to the core may become too high in value for anyone to sell, and too expensive to construct

Continued on page 178

Ambulatory patients enjoy this daylighted, end-of-hall sunroom. *Thermopane* insulating glass keeps it comfortable. Faith Hospital, St. Louis, Missouri.

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LOF GLASS

reports on a growing trend in

hospital architecture

Through large window walls, nature takes a hand in healing. We call it "open world" therapy. It's a trend in hospital architecture that is constantly growing.

Glass lets cheerful daylight and sunshine bathe each room. And from their beds patients can see blue sky and green trees.

But the patient's psychological needs must be balanced by other considerations—comfort, heating and air-conditioning economies, building mainte-

Glass-walled corridors connect buildings, look out at the open world, at Fisher-Titus Memorial Hospital, Norwalk, Ohio.
Architects: H. E. Beyster & Associates, Detroit, Mich.

Faith Hospital, St. Louis, Missouri. Associate Architects: Joseph D. Murphy and Angelo G. Corrubia, St. Louis. Windows are glazed with *Thermopane* insulating glass.

nance costs, security. Read how the hospitals shown on these pages solved their particular problems with L·O·F Glass.

YEAR-ROUND COMFORT

Thermopane® insulating glass and air conditioning are used at both Faith Hospital, St. Louis, and Roger Williams General, Providence, R. I.

Said Dr. Andrew Signorelli, founder and medical director of Faith: "People always feel better in bright, cheerful surroundings, patients particularly. No one likes to feel shut in, so through solar planning (with

Thermopane) we've brought in lots of sunshine and opened our rooms to the view."

Mr. William E. Sleight, Director of Roger Williams General, expands this opinion: "We feel that the large *Thermopane* windows contribute greatly to our pleasant and comfortable surroundings. Although we have operating sash, we never have to open them, even in the muggiest weather. In winter, when it gets down to zero, we're still comfortable near *Thermopane* windows and can enjoy the view outside. The windows don't frost up like they do in the old building."

Both hospitals are located near heavy traffic arteries, but rooms are quiet and serene because *Thermopane* effectively muffles outside noise.

Resident doctors relax in daylighted penthouse lounge at Faith Hospital, St. Louis. *Thermopane* insulating glass keeps the room comfortable all year 'round.

LOW-COST MAINTENANCE

Insulating glass in both buildings was used also to effect heating and air-conditioning economies. On this subject

Sweeping glass façade in the new wing of Roger Williams General Hospital, Providence, R.I. Architects: Howe & Prout, Providence. L·O·F *Vitrolux* was used in the spandrels, *Thermopane* in the windows.

gives us better humidity control.

"In summer, the overhangs shut out much of the sun, shade about two-thirds of the glass, make it easier to cool the rooms. Our studies *prove* that *Thermopane* has helped us save considerably on utilities (light, heat, etc.) as compared with other hospitals of equal size."

CURTAIN WALLS

At Roger Williams General, *Vitrolux*® glass spandrels used between the *Thermopane* windows create an all-glass façade. *Vitrolux* is heat-strengthened plate glass with rich color fused to the back. It adds youthful beauty and cheerful character to the structure. Regarding the curtain walls, the architect, Donald J. Prout, has observed:

"They gave us a far more clear-cut design. They're less costly to build, and take less time to erect. Not a single glass spandrel was damaged during construction. And the glass in the windows and spandrels will keep its appearance, year after year, much better than most materials."

GLASS FOR PATIENT SECURITY

Tuf-flex® *Thermopane* is used in the psychiatric ward at McKennan Hospital in Sioux Falls, S. Dakota.

John Treacy, Chief Engineer for Faith Hospital, says:

"We air condition with hot water in winter and cold water in summer—individually controlled, room by room. The *Thermopane* windows are a great help. In winter, for instance, they let in solar heat . . . thermostats in rooms on the south side shut off one-third faster than in the others. And the lack of condensation on windows

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LOF GLASS
THE QUALITY MARK TO LOOK FOR

You can see outside from any bed position in the new wing at Roger Williams General. Patients often feel "shut in" in an older room, shown on right.

This combines the insulating qualities of *Thermopane* with the strength of *Tuf-flex* for patient security. *Tuf-flex* is 3 to 5 times tougher than regular plate glass of the same thickness. And if *Tuf-flex* is broken, it is safer because it breaks into relatively small crystals.

For other windows in the new wing at McKennan, Heat Absorbing *Thermopane* (for control of sun heat and sky glare) and regular *Thermopane* were used.

McKennan Hospital, Sioux Falls, South Dakota. Architect: Harold Spitznagel, Sioux Falls. *Tuf-flex Thermopane* is used in the psychiatric ward for comfort plus security.

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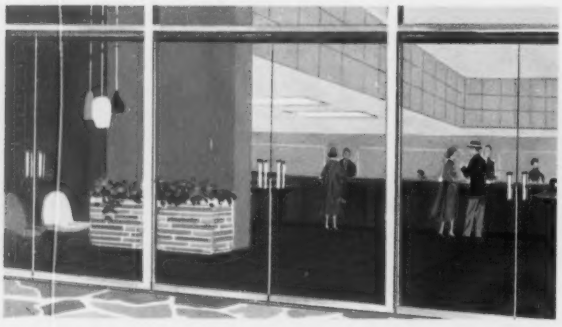
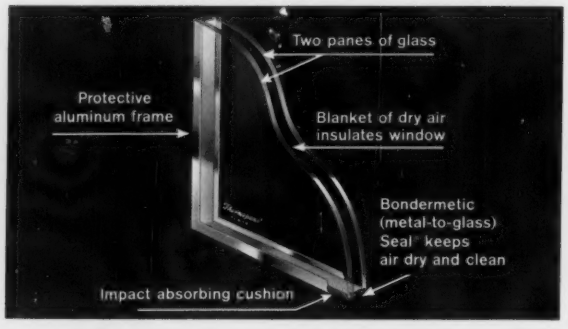
LOF GLASS

glass — for hospitals

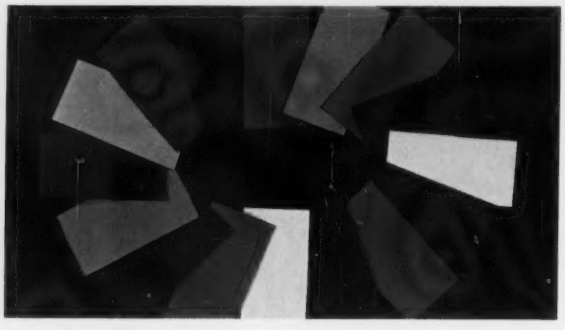


TUF-FLEX® DOORS — These frameless, clear-glass doors can withstand, with virtually no maintenance, all the traffic they help create. Made of ¾″ and ½″ thick tempered plate glass, they are 3 to 5 times tougher than regular glass of the same thickness. Sixteen types in finished sizes up to 48″ in width and 108″ in height.


Two panes of glass
Protective aluminum frame
Blanket of dry air insulates window
Bondermetic (metal-to-glass) Seal keeps air dry and clean
Impact absorbing cushion

THERMOPANE®— For maximum comfort and for heating and air-conditioning economy, use *Thermopane* insulating glass in windows and sliding doors. Heat loss is cut almost in half, compared to single glazing. Drafts near windows are reduced. Frost and fogging are minimized. Outside noise is muffled. Choice of plate glass (see left below) for outer pane.

THREE KINDS OF PLATE GLASS — *Parallel-O-Plate®* is clear plate glass, twin ground for clearest vision. *Parallel-O-Grey®* is tinted neutral grey. Heat Absorbing Plate is pale bluish-green. Both *Parallel-O-Grey* and Heat Absorbing Plate reduce transmission of sun heat to keep interiors cooler. *Parallel-O-Grey* reduces glare more effectively.



VITROLUX®— Rich color, fused to the back of this clear, heat-strengthened ¼″ plate glass, adds youthful beauty and cheerful character to any structure when used as a facing material. It is resistant to weathering, crazing and checking. Also ideal for interior partitions. Sixteen standard colors, plus black and white. Standard-size panels up to 48″ x 84″.

For complete information on these and other L·O·F products, refer to Sweet's Architectural File 26-A, or call your L·O·F Distributor or Dealer (listed under "Glass" in the Yellow Pages). Or write to Libbey·Owens·Ford Glass Company, 811 Madison Ave., Toledo 1, Ohio.

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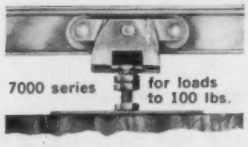

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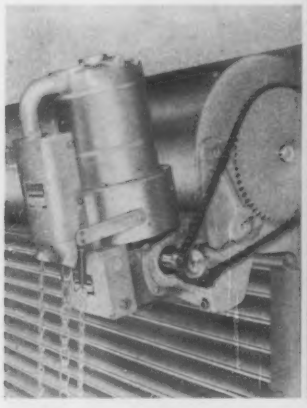

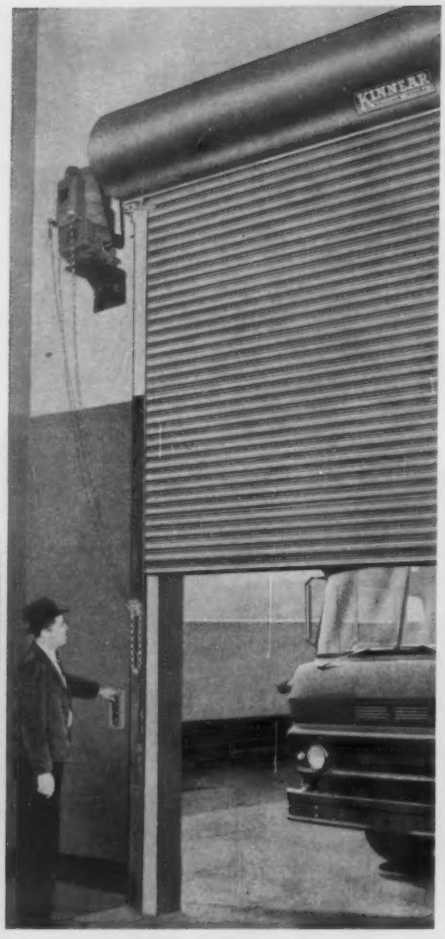

The Kinnear Motor Operator is NEW in every detail -- AND BUILT EXCLUSIVELY FOR DOOR SERVICE

Kinnear's new Power Operator for rolling doors is a specific-purpose unit. All features are uniquely integrated for door control that combines highest efficiency and durability.

Its *reserve power* assures smooth action that defies wind pressure, drifted snow, collected grime, or extra years of usage.

Special thermal protection prevents overload troubles — the motor cuts out before damage can occur.

New worm gearing takes "stop and go" action in its stride!

A new centrifugal clutch transmits motor action to the door without shock, increasing protection against motor stalls and overload damage.

The new power unit permits easy removal for servicing without disturbing the auxiliary hand-chain operator.

Seven sizes fit all door needs without costly "over-powering." Can be installed vertically or horizontally . . . bracket-mounted on the door or wall, or for through-the-wall operation.

Kinnear originated the door with the curtain of interlocking slats that opens upward, coils compactly overhead, and saves floor, wall and ceiling space. This new Power Operator brings the basic efficiency of Kinnear Doors to a new high in dependable, push-button convenience. *Write for complete information on Kinnear Rolling Doors and Power Operators.*

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Continued from page 172

on when in small pieces). Such combines would also develop land passed over in the first cycle of decentralization, including areas of swamp, ledge, and acreage considered inaccessible and poorly situated. I expect also that because of cost and numbers, we will have to accommodate densities much higher than those considered tolerable today, but not necessarily at the sacrifice of amenity and livability. Within this context, Jellicoe's thesis is not too far removed in time.

Because he does anticipate that which could occur in our own lifetime, Motopia does us a service. By creating a distinct possibility, Jellicoe has added to the literature of choices available. We need more such models constructed from different assumptions. Whatever distortions or omissions there might be in his work, his is an illuminating concept, tastefully presented, and deserving of widespread discussion.

Ambassadors of Good Design

Made in Denmark; A Picture-Book About Modern Danish Arts and Crafts. *Arne Karlsen and Anker Tiedemann. Jul. Gjellerup, Copenhagen, 1960. Distributed by Reinhold Publishing Corp., 430 Park Ave., New York 22, N.Y. 175 pp., illus. $7.95*

The Industrial Revolution is generally charged with the deterioration of products to the level of a broad mediocrity and the resultant blunting of public taste for quality of production and design. To a large degree, the Arts and Crafts Movement ultimately accomplished the stemming of this tide by bringing to the attention of factory owners the importance of the artist-craftsman and the designer.

The founders of the Arts and Crafts Movement thought it necessary to return to a situation similar to that before the Industrial Revolution, when wares for daily use, such as fabrics, pottery, and furniture, were produced at home to such an extent that everyone was familiar with the potentials and limitations of materials and the methods of their manufacture. By making the reader familiar with Danish crafts and materials, the authors of *Made in Denmark* hope to improve contemporary ability to recognize merit, and to develop confidence in that ability.

Made in Denmark presents a number of respected Danish products and shows why they are representative of good design and production. The authors take us on a pictorial tour through several work-

Continued on page 184

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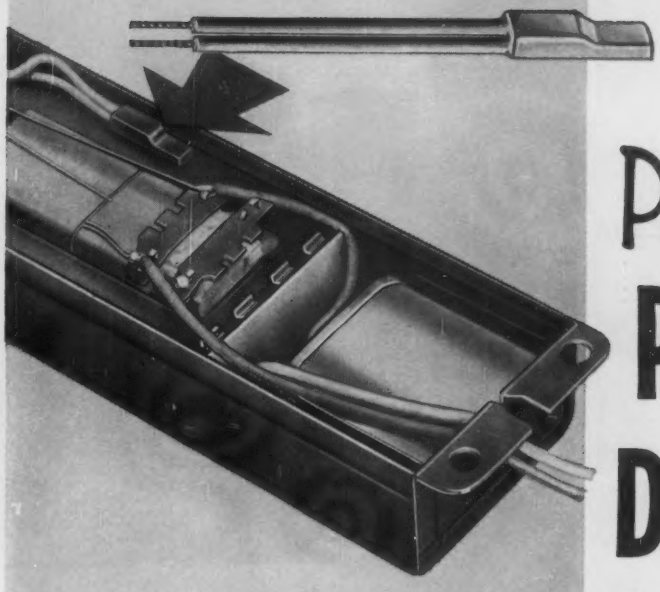

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ADVAN-guard®, a thermally actuated protective thermostat sealed in the ballast housing, automatically 'trips-out' whenever the ballast operates at abnormal temperatures from any internal or external cause. Unlike other protective devices which permit premature ballast destruction by cutting the ballast out of the line only after it has been destroyed, ADVAN-guard® cuts out before heat can cause premature destruction, resets automatically when the trouble has been corrected and permits the ballast to resume normal operation.

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NEW ADDITION—Eight-lamp 40-watt 4′ x 4′ recessed Day-Brite MOBILEX® fixtures deliver 100-110 footcandles, create inviting atmosphere for customers in main banking area.

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First National Bank of Florence, Ala. Architect: *Northington, Smith & Kranert;* Electrical Engineer: *Hazzard, McRoy & Cone;* Contractor: *Verbon Jones Electric Co.*

How Day-Brite helped the First National Bank of Florence blend something old with something new

The modern new addition to the First National Bank of Florence, Alabama, is an outstanding example of efficient, functional design. As is often the case, special problems arose when the older structure was remodeled to blend harmoniously with the addition.

Lighting, for example, had to match the new section in appearance and efficiency, yet fit the existing structural conditions of the old building. By specifying Day-Brite, remarkable results were achieved with standard fixtures. In addition to high-quality, low-glare illumination and a pleasing contemporary design, Day-Brite offered the necessary flexibility of installation.

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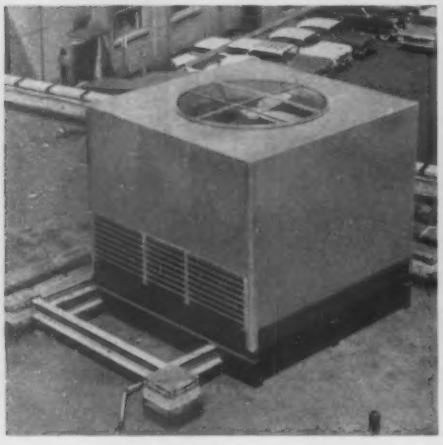
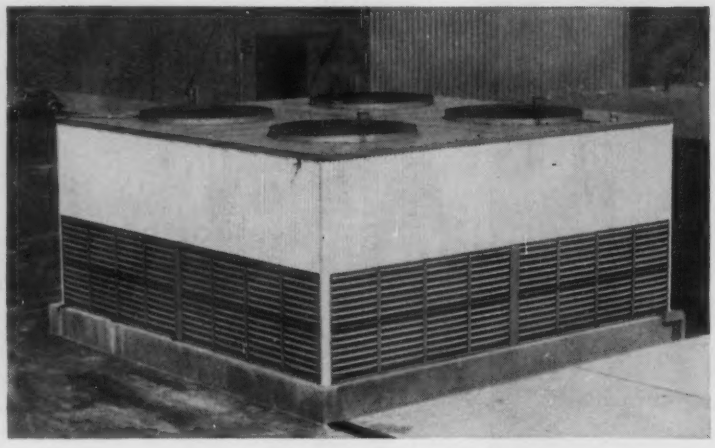


Standard steel-skin single-cell Carrier Cooling Tower with a capacity of 170 tons



Transite-skin Carrier Tower with four 355-ton cells—total capacity: 1420 tons

You can't see these 2 advantages, but they're there!

4. **Lower operating weights**—as much as a 50% reduction, and more, over conventional cooling towers.
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Carrier Induced Draft Cooling Towers, in 9 sizes with a capacity range from 170 to 500 tons in a single cell, are available complete with basin or without. For complete information, call your Carrier representative. Or write Carrier Air Conditioning Company, Syracuse 1, N. Y. In Canada: Carrier Air Conditioning Ltd., Toronto 14.

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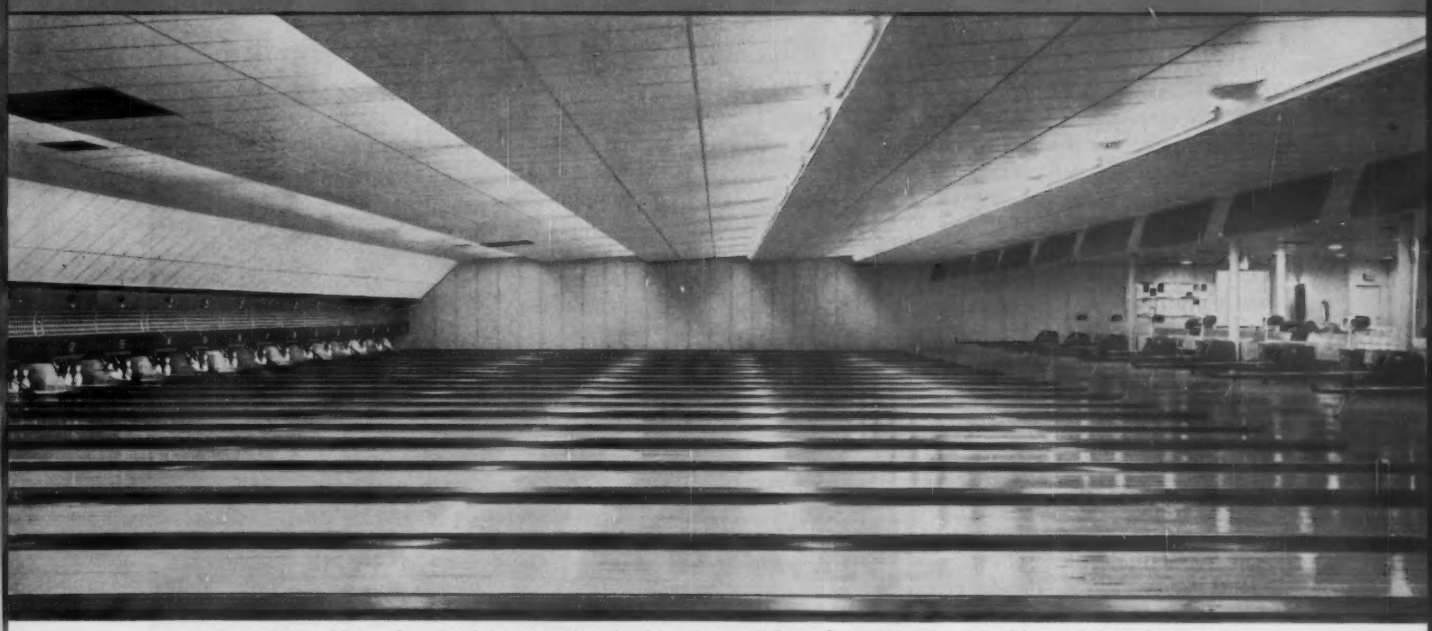
Bethlehem steel joists up here



Architect and structural designer: Bruno Vezzoli. Associate architects: Joseph J. and Lawrence H. Furman. Contractor: Louis Szmodis Inc. Fabricator: Bethlehem Contracting Company.

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for strength
. . . economy
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This 24-lane bowling alley has no obstructing columns to break up the all-important floor area. Bethlehem "L" series joists in the roof structure run parallel with the lanes and span 88 ft, front to rear. Bethlehem steel joists are ideal for any roof structure where column-free space below is of paramount importance, such as garages, auditoriums, gymnasiums, swimming pools, supermarkets.

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BETHLEHEM STEEL

BETHLEHEM STEEL

Continued from page 178

shops of Danish artist-craftsmen and through factories with Danish industrial designers. We watch with increasing excitement as a teapot grows on Kirsten Weeke's potter's wheel and as Dorte Raaschou's textile gains dimension from its handblocks. We follow the carefully staged building of Axel Brüel's "Thermodan" coffee service with childlike admiration and are deafened as the drop hammer and stamping machine eke out Erik Herlow's flatware from bars of stainless steel.

A section with 70 photographs discusses the interesting details of some straightforward and handsome Danish articles. Occasionally a picture of a child in a nursery chair lights up a page with appropriate naïvete.

A fourth section presents and discusses the directions in characteristic Danish interior design.

The resources of Denmark in these endeavors are convincingly presented, if proof were needed. But the authors' distinctions between the artist-craftsman and the industrial designer are somewhat tenuous.

They group the artist-craftsmen and the industrial designers into one section. Although they admit the growing difficulty of making a distinction between the two purely on the basis of production methods, grouping all designers together is confusing.

One firm tenet of the Arts and Crafts is that a true artist-craftsman carries out his work from beginning to end, from sketch to final hammer blow or stitch. Because assembly-line methods of manufacture generally preclude such concentration by one person, the principal prerequisite of being an artist-craftsman has been generally considered to be handicraft. But the significant emphasis is on the single designer-craftsman carrying out work from start to finish.

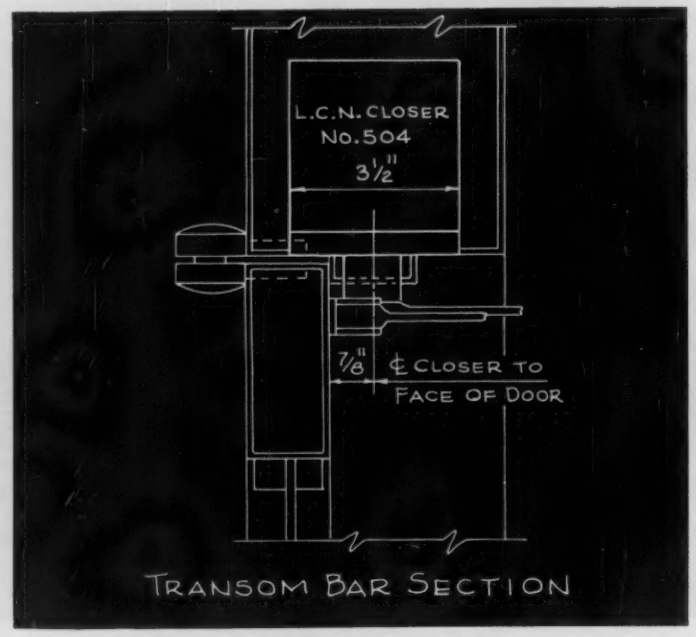
Within this framework, Hans Wegner can be considered an artist-craftsman because he designs and then makes the prototype of each of his famous chairs. Their subsequent reproduction, however, is an operation separate from Wegner's work as an artist-craftsman. Similarly, Kirsten Weeke is an artist-craftsman, while Natalie Krebs, who supervises the ceramic factory and prepares the glazes, cannot be so designated. Conversely, Henning Koppel, who has done some exquisite designs for silver, is an industrial designer by virtue of the fact that his work goes only so far as designing the original sketch and making a plaster model, albeit brilliantly.

The authors state that the distinction between the two is based on "the human element," i.e., the training of the designer and his familiarity with and attention to production techniques. An artist-craftsman is known for respecting his material; by the authors' distinction an industrial designer seems mainly to respect his production method.

With the example of Henning Koppel's splendid work, the question comes forcefully to mind whether a distinction is valid at all. Firm believers in the tenets of the Arts and Crafts Movement answer only that the industrial designer is denied the satisfaction of continuity in his work and the sensual pleasure of working with his material, and that he is in ultimate danger of losing touch with the nature of that material.

Lumping craftsmen's workshops with factory assemblies does create a tangential confusion, which does not, however, conceal the merit of the handsome Danish products that are so vitally presented.

C.R.S.



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for LCN Overhead Concealed Door Closer Shown on Opposite Page

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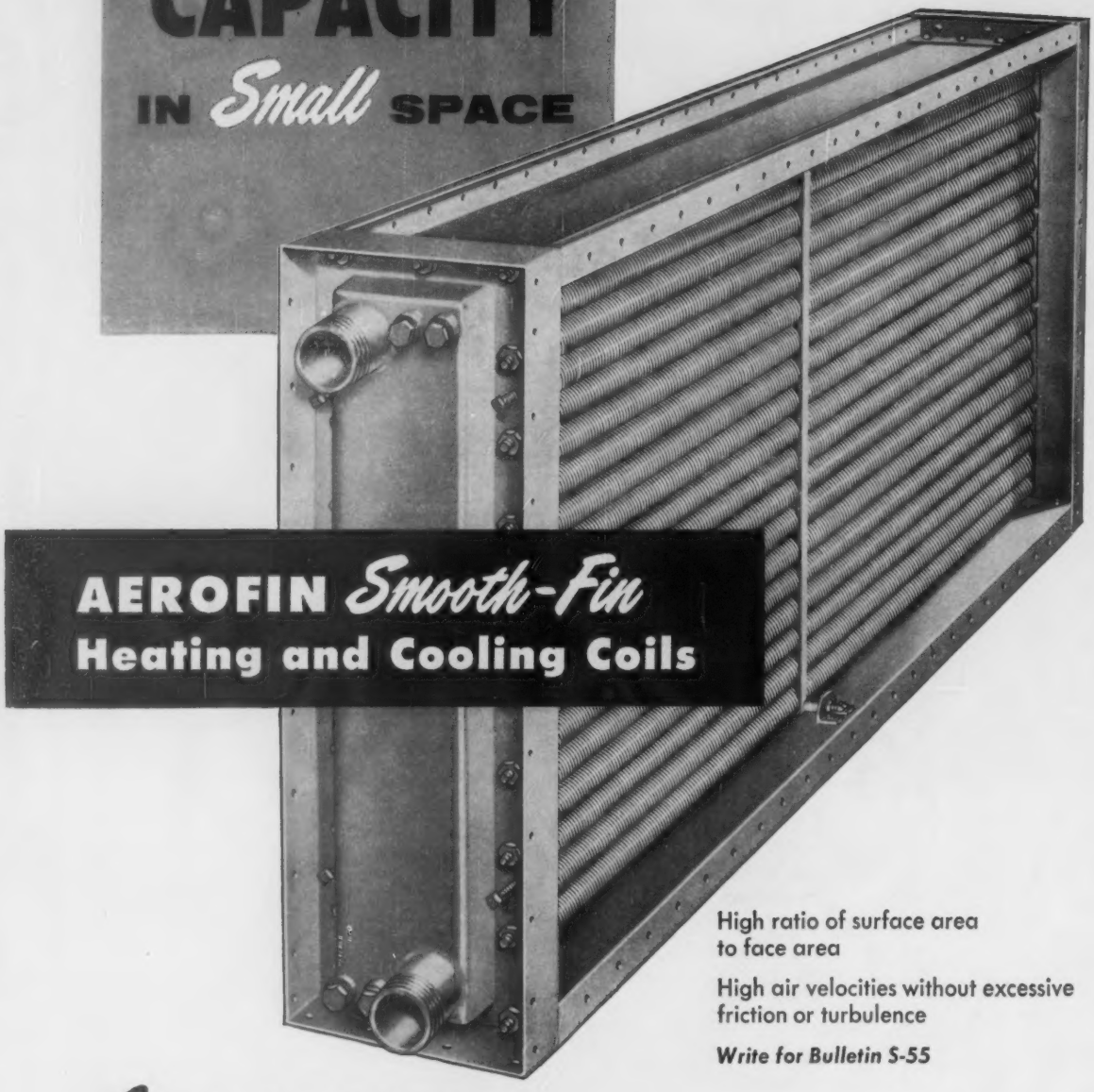

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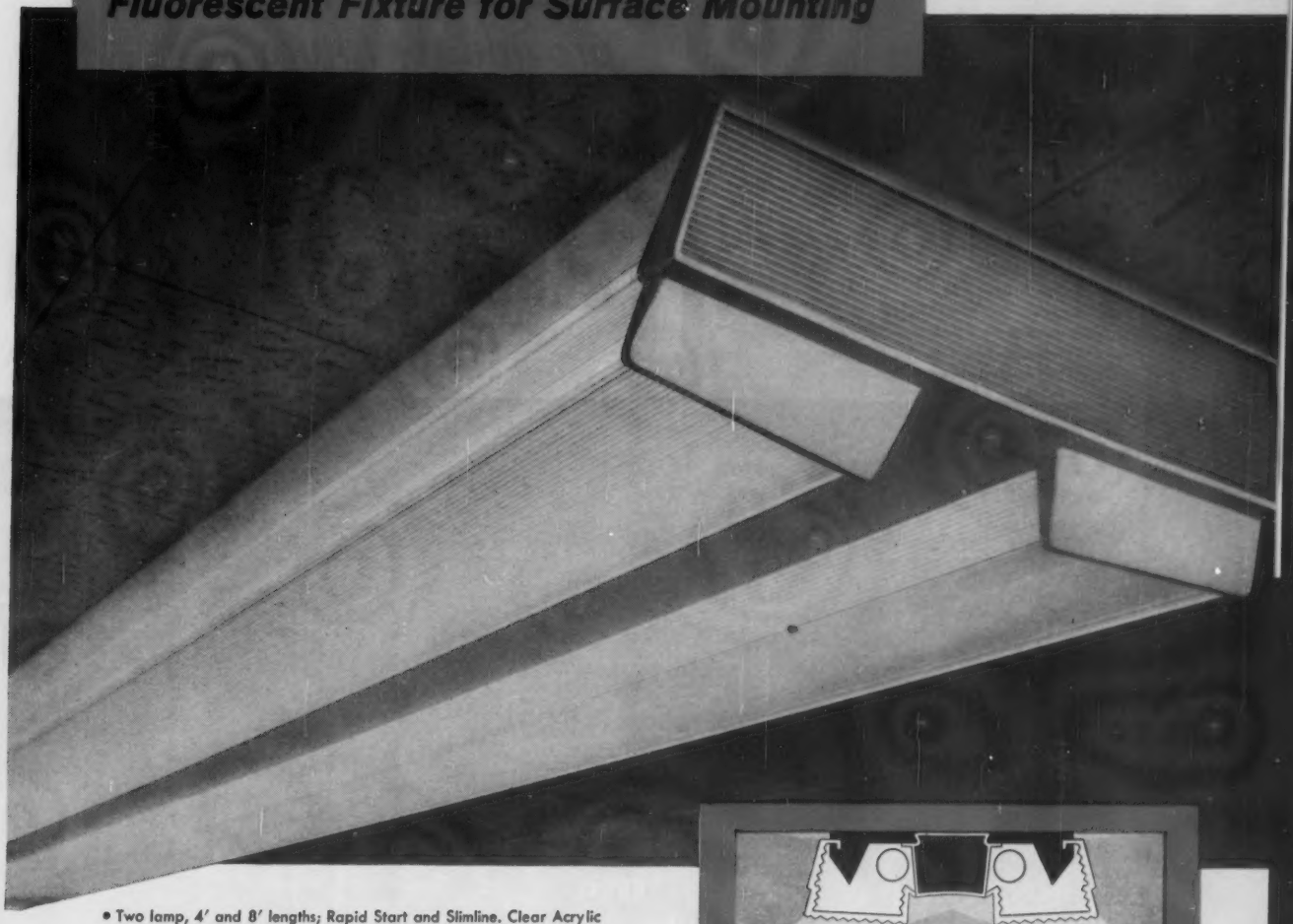

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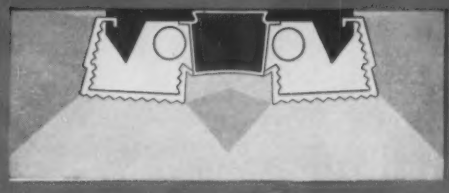

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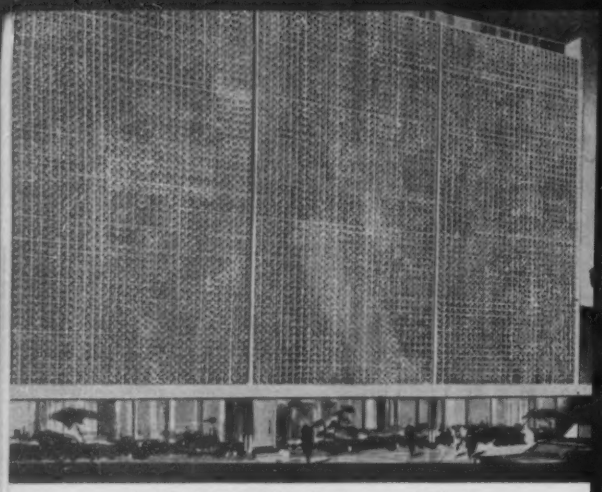

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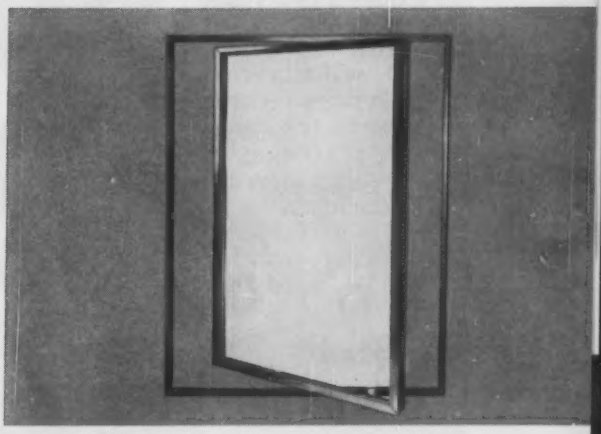

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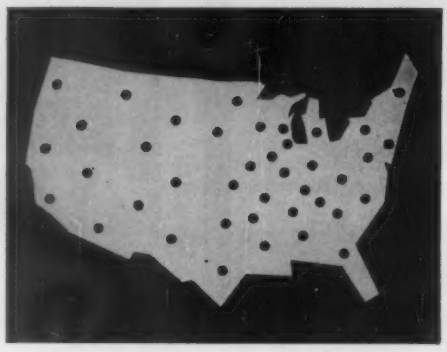

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The Construction of Gothic Cathedrals: A Study of Medieval Vault Erection. John Fitchen. Oxford University Press, 417 Fifth Ave., New York 16, N. Y., 1961. 344 pp., illus. $10.10

Capital Requirements for Urban Development and Renewal (ACTION Series in Housing and Community Development). John W. Dyckman and Reginald R. Isaacs. McGraw-Hill Book Co., Inc., 330 W. 42 St., New York 36, N. Y., 1961. 334 pp. $11.50

Hospitals, Clinics, and Health Centers. Editors of *Architectural Record*. F. W. Dodge Corp., 119 W. 40 St., New York 18, N. Y., 1960. 264 pp., illus. $9.75

Landscape Architecture: The Shaping of Man's Natural Environment. John Ormsbee Simonds. F. W. Dodge Corp., 119 W. 40 St., New York 18, N. Y., 1961. 244 pp., illus. $12.75

The Architecture of America: A Social and Cultural History. John Burchard and Albert Bush-Brown. Little, Brown & Co., 34 Beacon St., Boston 6, Mass., 1961. 595 pp., illus. $15

The City in History: Its Origins, Its Transformations, and Its Prospects. Lewis Mumford. Harcourt, Brace & World, Inc., 750 Third Ave., New York 17, N. Y., 1961. 657 pp., illus. $11.50

Engineer's Handbook. W. A. Thomas, H. A. Spalding, and Zarko Pavlovich. Vest-Pocket Library, Ottenheimer Publishers, Inc., 4805 Nelson Ave., Baltimore 15, Md., 1960. 192 pp., tables, diagrams. $.95

A compact (2⅝" X 5½") reference manual for the architect or engineer with a vest pocket, and with a mind too active to remember much easily forgotten data. Basic information on all aspects of engineering—formulas, definitions, tabulations, etc.—is printed in engineering lettering, which is comfortably familiar but a bit hard to read.

Sunset Patio Book (Revised Edition). Lane Book Co., Menlo Park, Calif., 1961. 166 pp., illus. $2 (paperbound)

Ideas for planning and building garden living rooms, patio pavements, pools, lighting, barbecues, lanais, decks, outdoor benches, planting, patio roofs, and garden shelters.

Peter Cooper and the Wrought Iron Beam (CUAS 7). Esmond Shaw. Cooper Union School of Art and Architecture, 4th Ave. and 7th St., New York, N. Y., 1960. 32 pp., illus. (Limited number available on request)

A handsome monograph documenting the role of Peter Cooper in the evolution of the skyscraper. One of many publications celebrating Cooper Union's centennial, this essay was undertaken as a class project, and is written by the Head of the Department of Architecture. Among Peter Cooper's many claims to fame is the invention of Jello, derived from his fortune-building process for the manufacture of glue.

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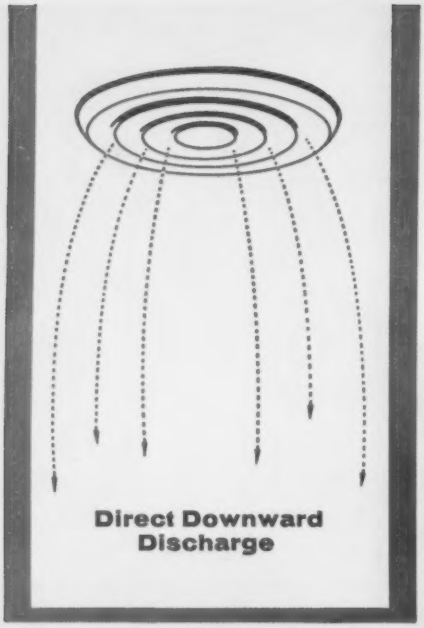

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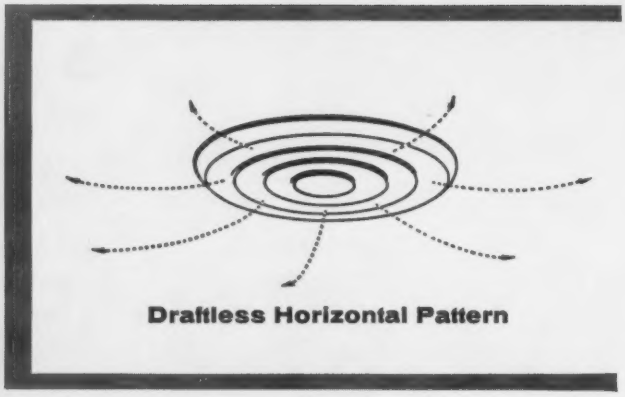

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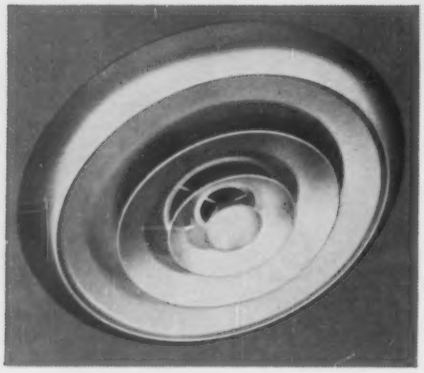

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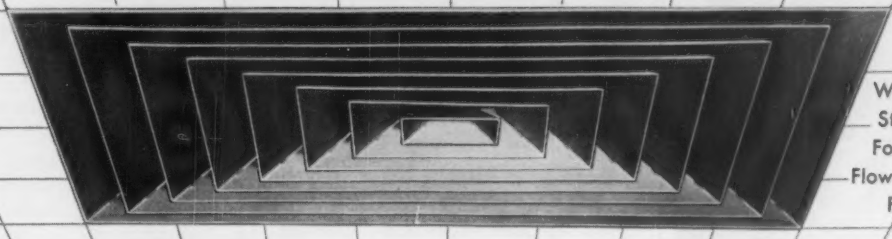

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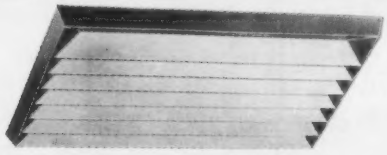

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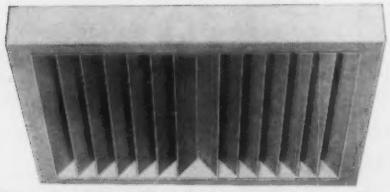

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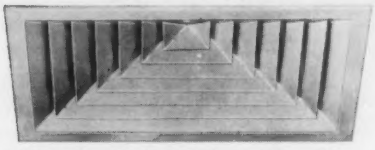

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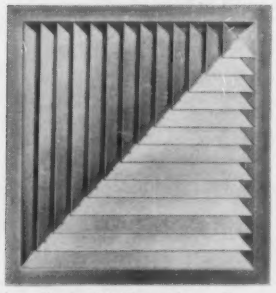

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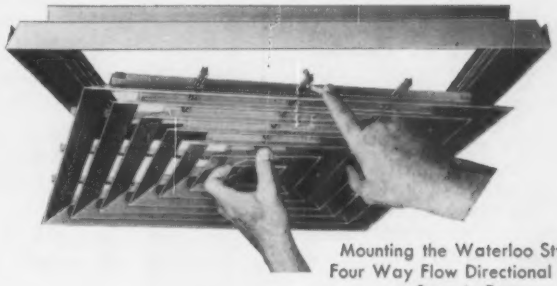

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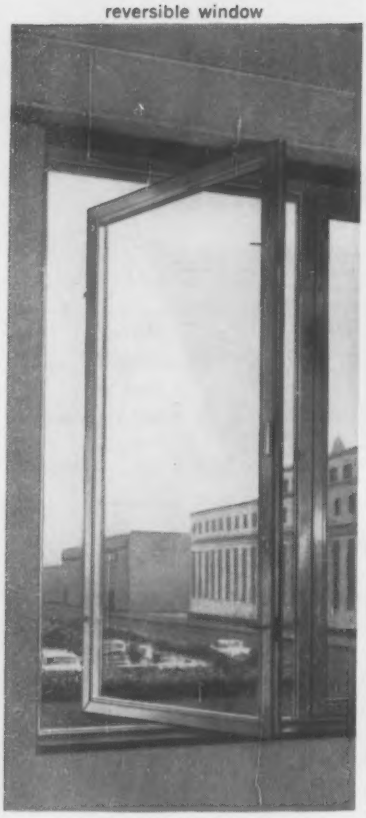

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ROLAND LANE, Architect, 519 H Street, Anchorage, Alaska.

W. C. MUCHOW ASSOCIATES, Architects, 3911 E. Exposition, Denver 9, Colo.

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JOHN CHORNYAK, Architect, 257 Green River Rd., Greenfield, Mass.

DONALD E. FERRY, EARL W. HENDERSON, principals in firm of FERRY AND HENDERSON, Architects, 630 E. Jackson, Springfield, Ill.

ALBERT GOLDBERG & ASSOCIATES, INC., Architects, 669 Boylston St., Boston 16, Mass.

LEO KORNBLATH ASSOCIATES, Architects-Planners-Interiors, 18 E. 41 St., New York 17, N.Y. Formerly MORRIS LAPIDUS, KORNBLATH, HARLE & LIEBMAN, which has been dissolved.

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Elections, Appointments

C. G. DAVIS, T. A. FEARNSIDE, F. R. STEVENS, elected Vice-Presidents in firm of STONE & WEBSTER ENGINEERING CORP. of Boston and New York.

NICK HARRISON and LEONARD GERKIN, elected Corporate Officers in firm of ENGINEERING SERVICE CORPORATION, Los Angeles, Calif.

RAY O. JACOBSON, JR., appointed Vice-President in firm of JYRING AND WHITEMAN, INC., Hibbing, Minn.

A. W. MCKELVEY, appointed Executive Vice-President in firm of GEORGE VERNON RUSSELL & ASSOCIATES, Architects and Engineers of Los Angeles and Sunnyvale, Calif.

GEORGE H. MIEHLS, SOL KING, SHELDON MARSTON, R. E. LINTON, V. C. WAGNER, G. S. WHITTAKER, PAUL G. FLECK, elected Directors in firm of ALBERT KAHN ASSOCIATED ARCHITECTS AND ENGINEERS, INC., Detroit, Mich.

WARREN R. RICHARDSON, made Chief Architect in firm of WILLIAM J. CONNOR & ASSOCIATES, Architects and Engineers.

BENJAMIN SILBERSTEIN, appointed Chief Mechanical Engineer in firm of BENJAMIN & FLACK, Consulting Engineers, Sayville and Manhattan, N.Y.

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C. T. ROFF elected President of ANEMOSTAT CORPORATION OF AMERICA.

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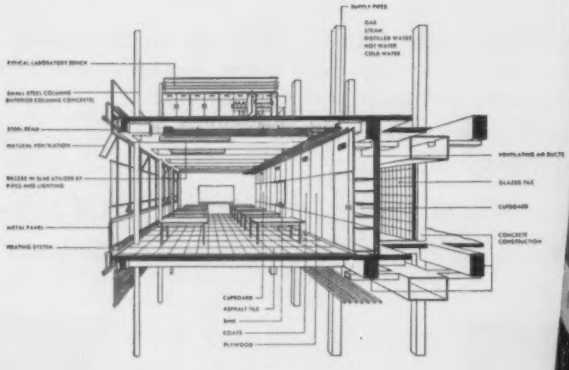

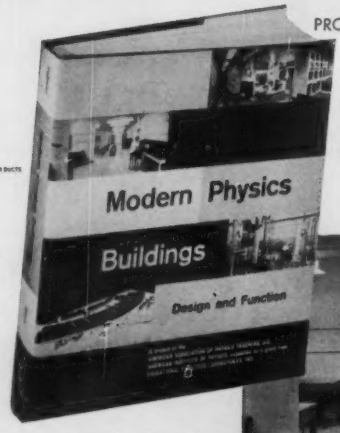

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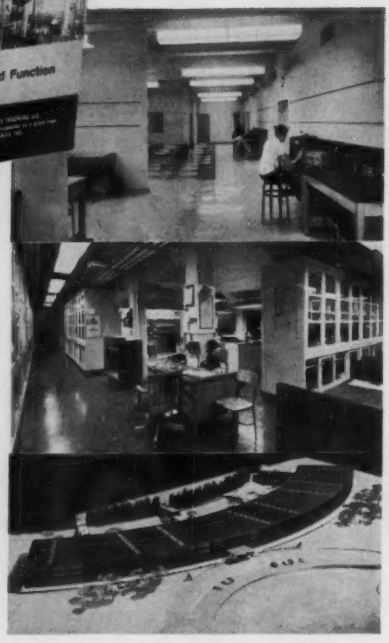

TODAY'S INCREASING NEED for physics teaching and research has placed new demands on the design of physics buildings. This comprehensive and fully illustrated book thoroughly covers all aspects of both planning and design of modern physics facilities.

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An important feature is the inclusion of more than 300 photographs and detailed floor plans of outstanding physics, science and industrial research buildings in both the United States and Europe. These excellently reproduced illustrations are thoroughly integrated with the extensive text.

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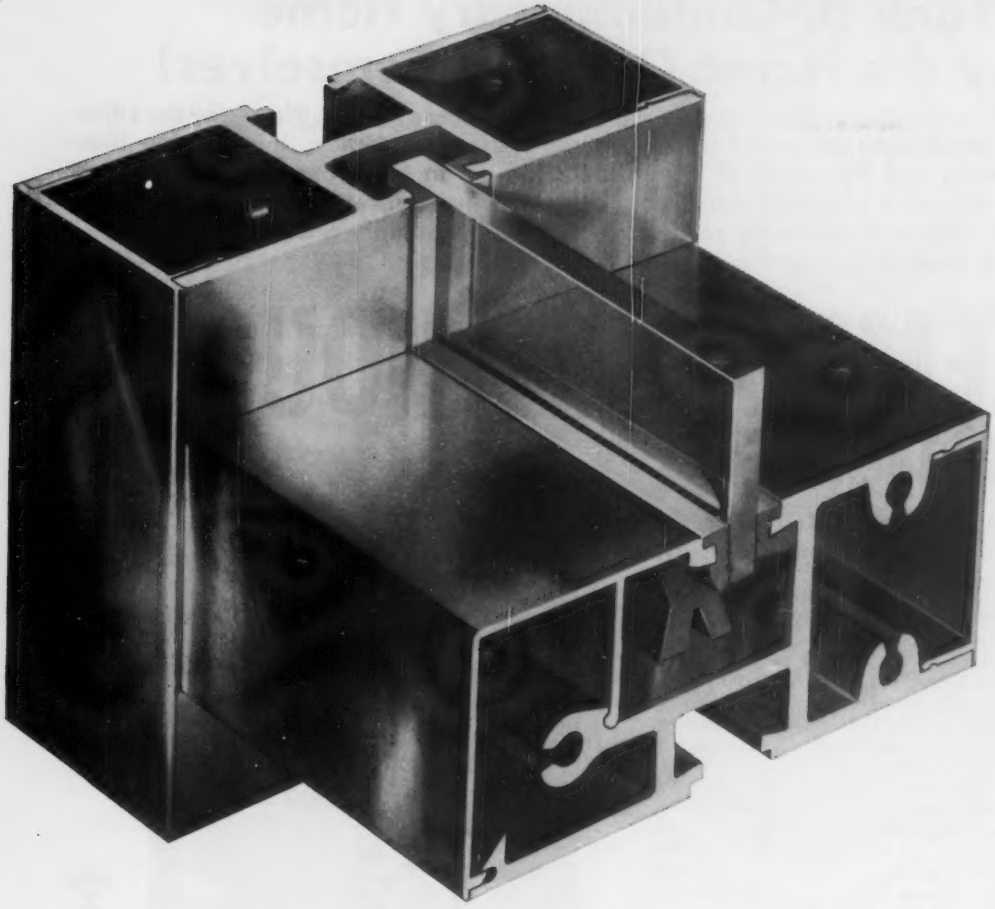

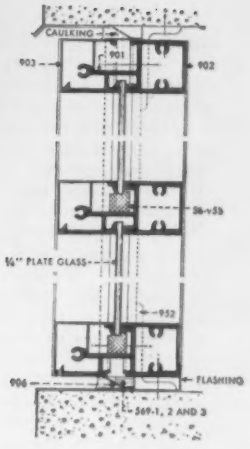

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How well have the houses designed by some of America's best residential architects worn? How well have they actually met the needs of the families for whom they were planned? Here is the *first* book to answer these questions by going directly to the home owners and getting their no-punches-pulled opinions. Written by the editor of *Progressive Architecture*, this lavishly illustrated book is an important report on the successes and failures of certain generally accepted axioms in contemporary architecture.

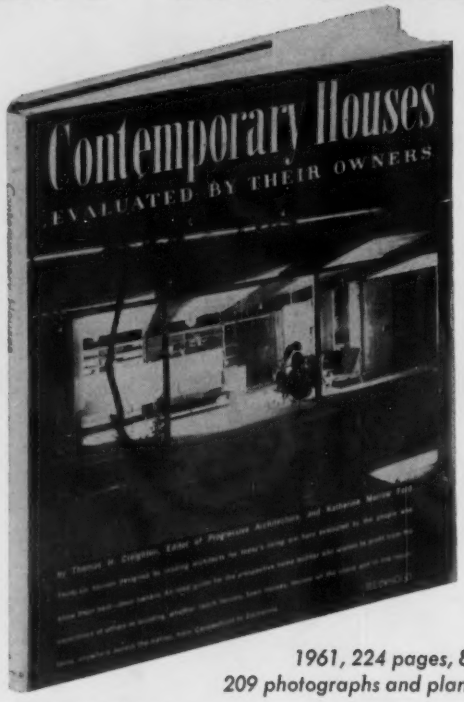
CONTEMPORARY HOUSES:
Evaluated by Their Owners

by THOMAS H. CREIGHTON, F.A.I.A.
Editor of *Progressive Architecture*

Frankly and freely, the owners of 36 custom-designed houses tell what they like—and what they *don't* like—about their new homes. They describe how site plans, room arrangements and materials have worked in homes created by some of America's finest architects. They reveal how the popular concepts of most contemporary home design—open planning, large areas of glass, flexible use of space, natural materials and finishes, and the elimination of architectural "ornament"—have worked in actual practice, day in and day out, during an occupancy of at least several years.

Accompanying the home owners' comments are floor plans, excellent photographs of both interiors and exteriors, and factual descriptions of the architects' problems and their solutions. In his introduction Mr. Creighton analyzes the owners' comments, and draws some perceptive conclusions. Among the many distinguished architects whose works are evaluated by their clients are Richard J. Neutra, Philip Johnson, Mario Corbett, Henry Hill, Olindo Grossi, Minoru Yamasaki & Associates, and Wurster, Bernardi & Emmons.

Here is a valuable, penetrating and often witty look at some of the tenets (and cliches) of contemporary design. Profusely illustrated with both photographs and plans, *Contemporary Houses* is a collection of outstanding homes as well as a critical and analytical report on certain basic concepts of modern house planning and design.



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INTIMATE LIVING

from the Owners' Comments: The house makes for great intimacy in living. In fact, no real privacy is possible. When we entertain on any scale, we park our son elsewhere for the night. Since one of us (my wife) detests the accordion, it is safe for the other (myself) to practice only when he is alone in the house. Our son cannot very well have his friends in at the same time we have ours. However, we enjoy an intimate home life and the limitations are not important....

Location: Berkeley, Calif. Architect: Roger Lee.

DRAMA

from the Owners' Comments: Open planning plus high ceilings plus lots of glass make snow storms and even easterly rains a delight to watch. Having spent 25 years in Colonial design, we feel particularly emancipated.... We are just beginning to find out, however, how useful in actual living the 16-ft. deck will be. Without it there would doubtless be a bad feeling of height from inside the house....

Location: Fairfield, Conn.
Architect: Sherwood, Mills & Smith.

WALLED FOR PRIVACY

from the Owners' Comments: In general the open plan has worked out quite well.... The only criticism is that there is little aural privacy in a house of this size. The open bedrooms over the living room area, of course, are not completely private. This presents no problem now, but it may after we have children in the family. For this reason we are planning a completely separated area in the second-story addition at the front of the lot.

Location: Long Beach, Calif.
Architect: Killingsworth-Brady-Smith.

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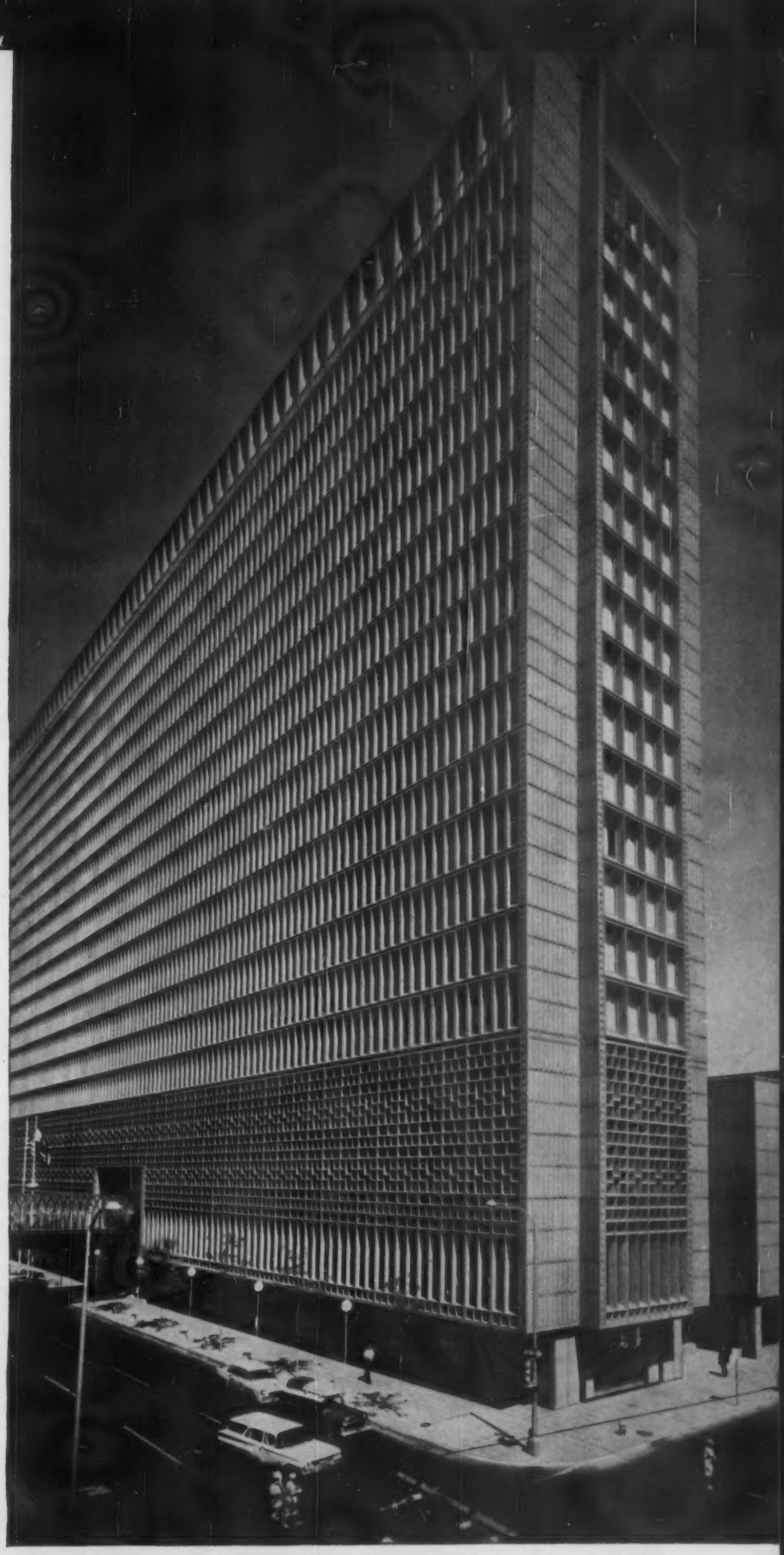

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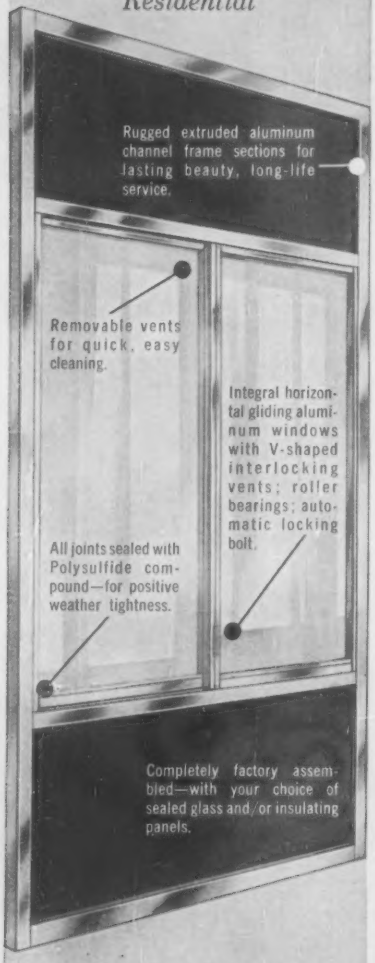
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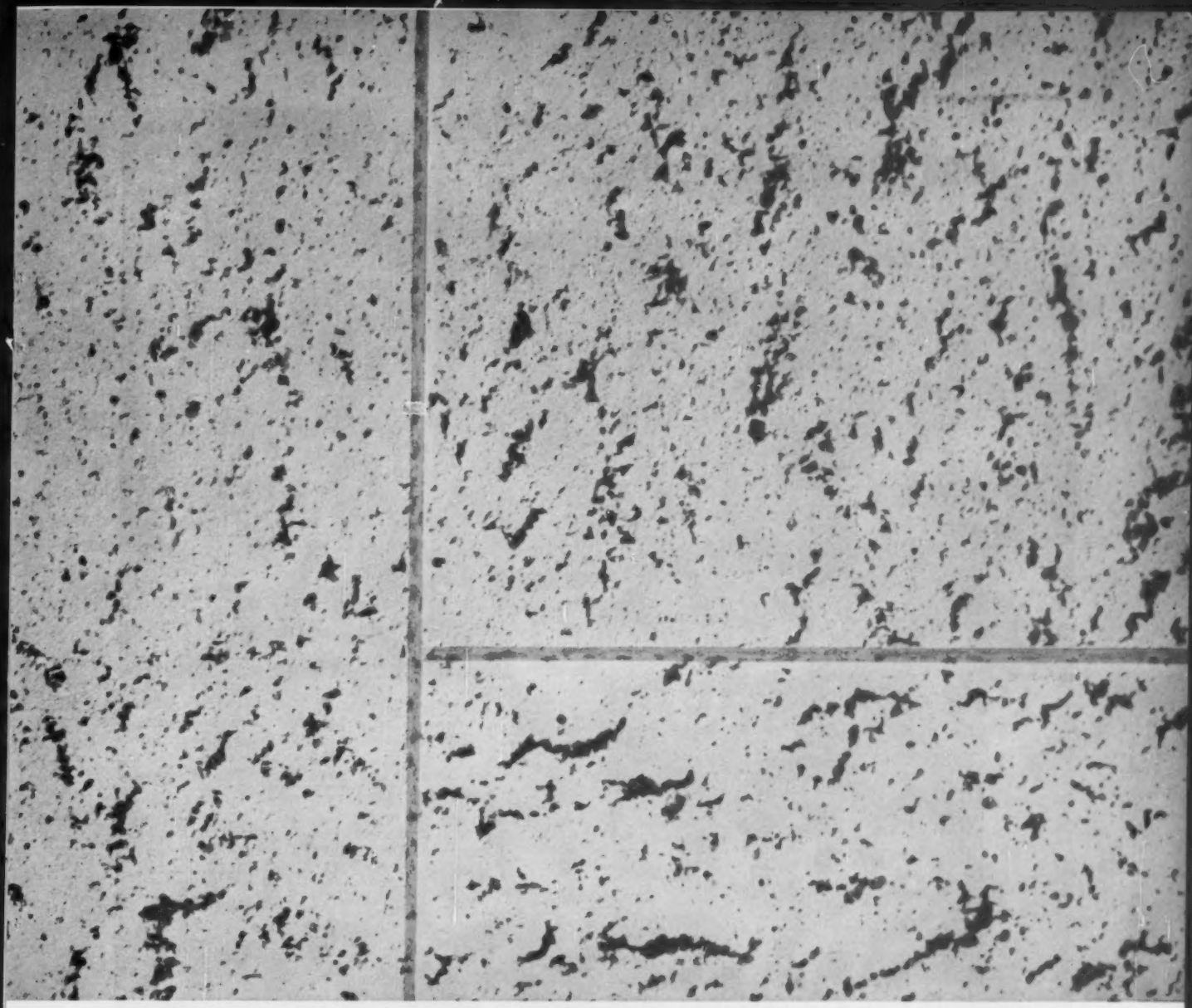

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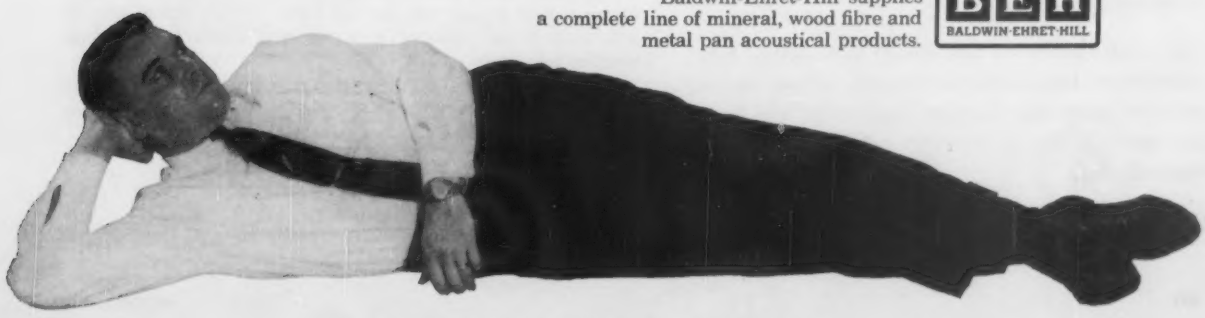

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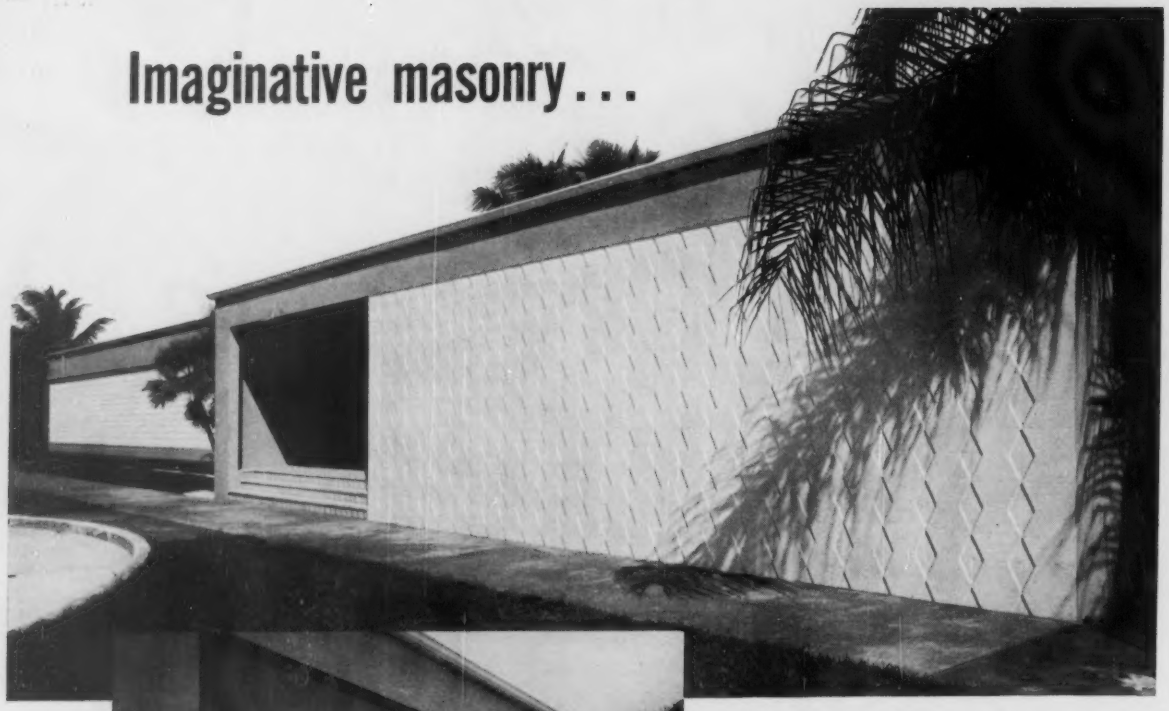

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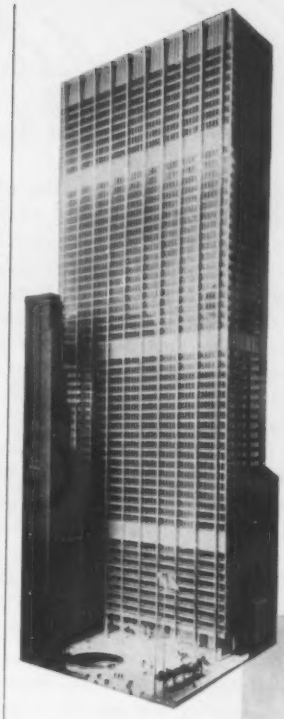

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P.S.

Reader inquiries form an extracurricular part of every magazine's activities. Although we have found that it is possible to regularize such services as requests for products and manufacturers' literature data in a formal department, there are many inquiries that require special knowledge, particular judgment, or remarkable memory for a useful answer. These we process through one person, who then seeks the advice of whatever member of the editorial staff she thinks might be the expert that time. June Frame, who has been doing this job with patience that astounds me, has written a little essay on the subject, which I am happy to present to you:

It is always flattering to be regarded as a font of information, and the editorial staff of P/A is no exception. However, the diversity and consistency of questions we are asked creates a two-sided coin. We are flattered, but sometimes we are annoyed—and, should the coin light on its edge, amused.

Inquiries arrive in three main ways: by letter (or scribbled postcard), by telephone, or in person. (Now and then someone walks into the reception room and requests "everything P/A has published on hospitals—or schools—or architecture suitable, say, to South Patagonia or a Florida swamp.")

The most easily handled are the seekers of information—questions as to if or when P/A has published a certain building or a certain architect's work. We do have a file of what has appeared in the magazine, and if this does not come up with the answer, we refer one and all to *Bell's Architectural Index*, which is available in most libraries, is published annually, and lists, by subject matter, all that the leading architectural magazines have carried.

Most consistent are the requests for tear-sheets. A limited number are available, but as most tear-sheets are for the architects who have been published, the writers, and for our own files, it's a first-come, first-served business. A blithe request for "Oh, say 40 to 50 tear-sheets" of an article published in 1953 results, naturally, in an apologetic letter and a referral to Back Issues Corporation, 805 Mamaroneck Avenue, Mamaroneck, New York. (Because of storage problems, Reinhold does not attempt to keep back copies for any longer than three months. When they are available, they cost $1 per copy.)

Questions range from the reoccuring scribble from an eighth-grader asking for help in his chosen career (often this is a succinct "Tell me all about architecture") to questions which are difficult either because they are too specific or too broad. They run all the way from something as pinpointed as "a home for children suffering from club feet" to "what have you published on houses?"

There are frequently complicated queries formulated in fuzzy syntax. A typical letter may read, "You once published an article two or three years back, or maybe longer ago, in which somebody discussed hyperbolic parabaloids as they might have affected Chinese symbolical architecture. Or maybe it was Hindu architecture. You know the article I mean?"

There are the requests for information on the building of such specifics as a slaughter house, a county fair ground, a wine farmers' co-operative. There are competitions and school problems and the resulting questions from students. There was once a letter from Germany for which we had no answer; the man was in search of an American real estate agent interested in buying castles.

A rough record is kept of all questions received. Not all of them are preserved for posterity, certainly not every phone call (after all, we are a little busy putting out a magazine!). The record does, however, give us an insight into the popularity of the various subjects that have been published, which helps us in planning future issues. Moreover, and perhaps more important, it gives us a feeling of closeness to our readers, the reassurance that we are not writing and publishing in vain, that there is an audience "out there." We may grumble about the form in which the questions are presented, but we are flattered at such faith in our knowledge. And every once in a while comes a "thank you" note of appreciation and we feel that we have made a friend.—J.F.

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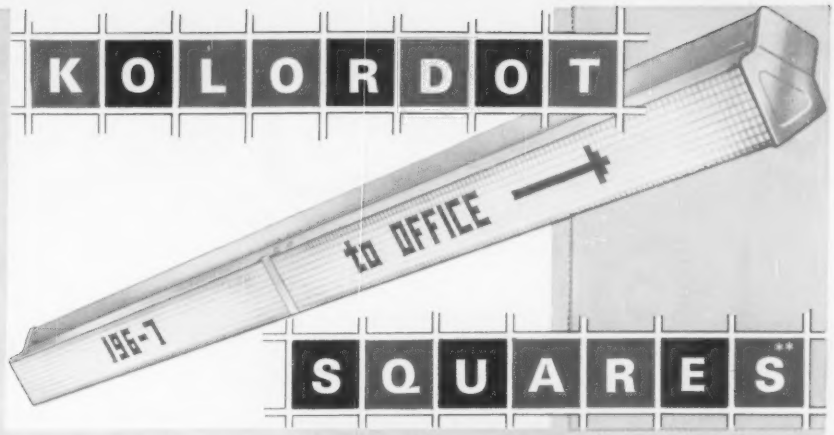

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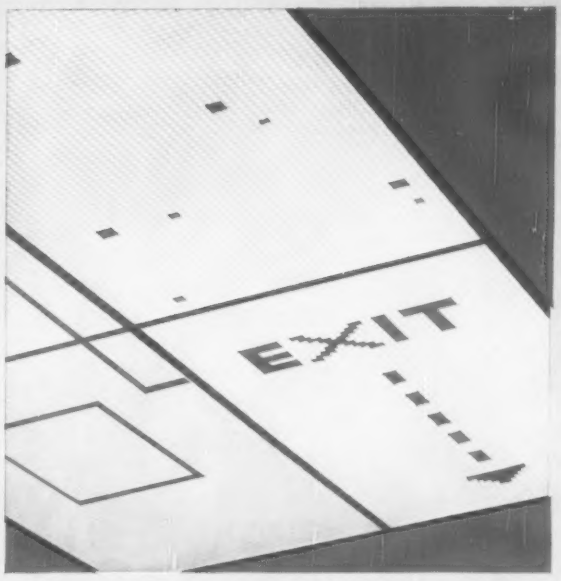

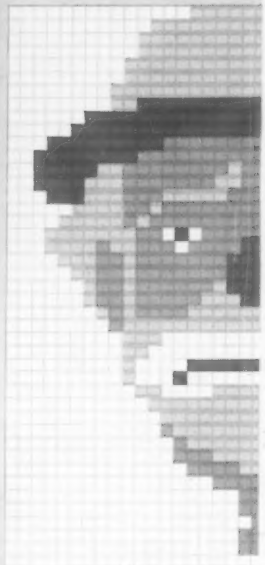

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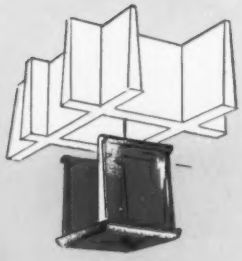

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Architect's model of International Building.

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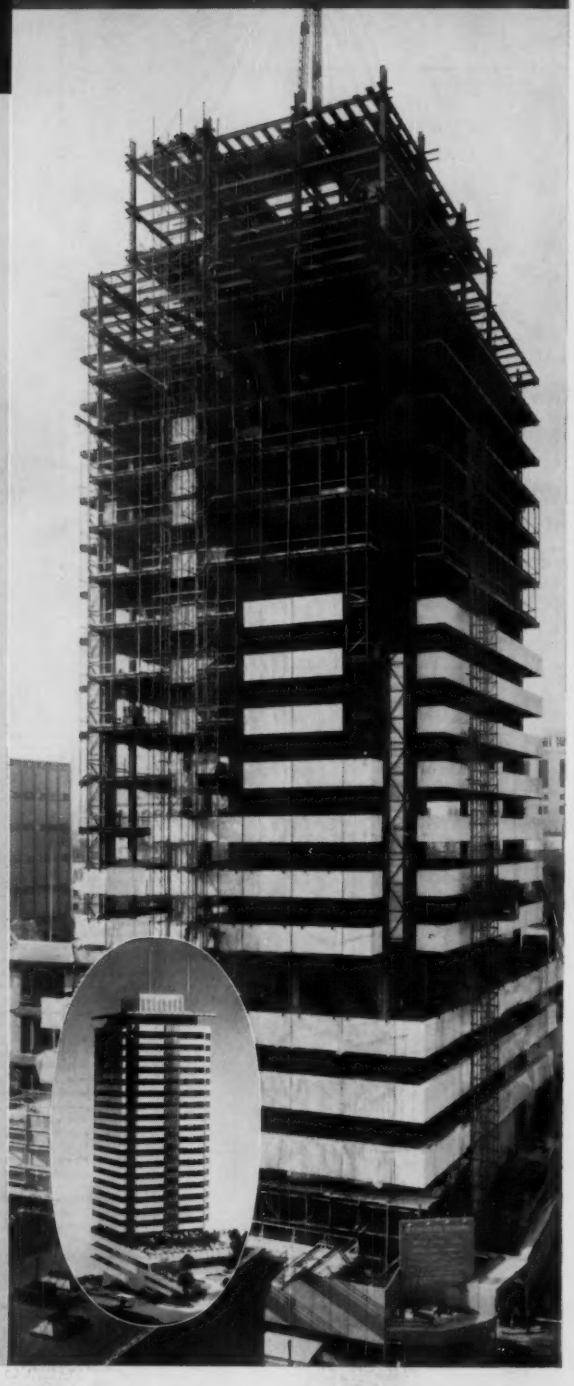

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